CONTENTS (IWMP III)

CHAPTER- 1

METHODOLOGY

INTRODUCTION

The Government of India (GOI) has adopted watershed management as a national policy since 2003. Several studies have highlighted that appropriate natural resource management and its utilization results in enhancement agricultural productivity. In order to achieve food security, minimize the water conflicts and reduce poverty, it has become essential to increase productivity of rainfed / dry land farming by utilization of available natural resources.

In Haryana, watershed activities were undertaken by Department of Agriculture (Soil Conservation), Forest Department and Rural Development Department. The existing scheme of watershed, like DPAP, DDP, IWDP & Haryali were brought under one umbrella in the name of Integrated Watershed Management Programme in the year 2008. The scheme is basically for rainfed area, Common Guidelines were framed by National Rainfed Area Authority. Rural Development Department is the Nodal Department for implementation of IWMP through State Level Nodal Agency.

To implement watershed area (IWMP III) programme a systematic baseline survey has been conducted to know the potentiality of the village. With this view, a baseline survey was conducted in eleven micro- watersheds Kheri Taluka Patoda (part) (2C5G6a1), Kahari (2C5G6a3), Amadalpur (2C5G6a3), Koka (2C5G6a7), Asadpur Khera(2C5G2b2), Machhrauli (Part) (2C5G2a7), Dadanpur (2C5G2a6), Subana (Part) (2C5G2c1), Bhatera (Part) (2C5G2g1), Kasni (Part) (2C5G2q7) + Samaspur Majra (Part) (2C5G2b3) and Dhakla (Part) (2C5G2c3) spread over in eleven villages each representing the micro watersheds. The base line survey conducted shall be considered as bench mark against which the results of project could be compared at the end of the implementation. It would also be helpful in guiding watershed

programmes and to plan its goal in identifiable terms and be used as future reference. PRA techniques and transect walk were conducted with the Gram Sabha members and beneficiaries for building confidence in participation during project planning.

1.1 SCIENTIFIC PLANNING

1.1.1 Cluster Approach

This envisages a broader vision of Geo- hydrological unit which involves treating the cluster (IWMP III) of 11 micro watersheds namely Kheri Taluka Patoda (part) (2C5G6a1), Kahari (2C5G6a3), Amadalpur (2C5G6a3), Koka (2C5G6a7), Asadpur Khera(2C5G2b2), Machhrauli (Part) (2C5G2a7), Dadanpur (2C5G2a6), Subana (Part) (2C5G2c1), Bhatera (Part) (2C5G2g1), Kasni (Part) (2C5G2q7) + Samaspur Majra (Part) (2C5G2b3) and Dhakla (Part) (2C5G2c3) with their respective codes.

1.1.2 Base Line Survey

Bench mark survey was conducted for collection of base line data on various bio-physical and socio-economic aspects. The methodology adopted was as follows:

1.1.3 Collection of Primary Data

The project was sanctioned in 30th Steering committee meeting for IWMP on 30.01.2013 and the preparatory phase started in 2013. Initially, a meeting was arranged with officials of concerned departments and technical experts located at Kheri Taluka Patoda, Kahari, Amadalpur, Koka, Asadpur Khera, Machhrauli, Dadanpur, Subana, Bhatera, Kasni + Samaspur Majra and Dhakla micro- watersheds. During this meeting, Preliminary Project Report (PPR) was discussed.

In order to have first hand information, a joint visit in the project area was made along with PRI members. In this survey, physical location of the watershed, drainage pattern, slope, land use and other problems related to the area were assessed. Sarpanches and local people were involved in the discussions and needs and scope of watershed works were taken up.

The survey of India toposheets (Survey of India) of the area available on the 1:50000 scales were procured of the project area and all assigned villages were marked on the copies of the toposheets (Survey of India) as well as on the maps prepared by Soil and Land Use Survey of India (SLUSI).

The primary data was also compiled from revenue records, Anganwari workers and statistical officers of the district. Rainfall data was collected from the Ground Water Cell to maintain the record of rainfall from rain gauge station located in the Sub division/district headquarter of the project area.

1.1.4 Collection of Secondary data

The data with regard to Demographic, socio-economic, infrastructure, land use, primary and secondary occupation, major crops grown and the production of crops and seasonal vegetable, marketing facilities, fodder production, agro-forestry crops, livestock and milk production, status of self help groups, previous watershed schemes and works undertaken under MGNREGA etc. was gathered with the help of a designed Performa. Additional information was gathered by group and individual discussions with women groups, landless and other poor sections of the society. The issues concerning water availability, use of common property resources, fuel and fodder availability, wage employment opportunity and other major concerns were discussed, debated and recorded.

1.2 PARTICIPATORY RURAL APPRAISAL

The due process of Participatory Rural Appraisal was followed in which village committees were sensitized about project activities. An appraisal of land resources, water resources, forest and pasture land resources, common property resources, production system and livestock resources was carried out by collecting data from primary and secondary sources. Group meeting were organized at common places and problem and possible solution were debated, discussed and efforts were made to reach agreement on activities required under the projects. This was followed by transect walks across the entire area of the village and spots indicated by the community. The Technical possibilities were discussed and measurements were recorded for jointly agreed activities. Similarly, discussions were held on proposed entry point activities and techno-feasible works were finalized keeping in view the availability of funds in the project. Feasible proposals on production activities and techniques to improve crop, fruit and milk production were held. The women groups were sensitized about income generating activities and skill improvement by various types of trainings. The field staff facilitated the process of participation at the planning stage. The roles and responsibilities of all stake holders as per guidelines , the mechanism of fund flows, cost sharing arrangement in different components and operational mechanism of the projects was thoroughly discussed with the community and Watershed Committees (WC).

1.2.1 Participatory Net Planning

The action plan was formulated based on the PRA, Geo-hydrological condition, Drainage pattern, Soil class, Soil erosion, forest and agriculture land. The project proposals were deliberated in the Gram Sabha meetings which were approved with required amendments.

Based on the experience of the experts working in the area and catchment area characteristics each structures like Water conveyance system, Dug Out Pond (New/Renovation), Ramp/Ghat Inlet and Outlet, Roof top rain water recharge structures etc. were recommended to conserve and store water used for life saving additional irrigation potential in the rainfed area and to avoid further degradation of the land.

1.2.2 Community Participants in Social Mapping

The village communities were apprised about project activities. Group meetings were organized at common places, problems and possible solutions were debated, discussed and efforts were made to reach agreement on activities required under the project. Social mapping involving local community was prepared. Infrastructure services and other village resources such as ponds, agriculture land etc. were mapped.

1.2.3 Transect Walk

Reconnaissance survey was carried out through transect walk in order to identify the needs, treatments required and worksites. The sites were marked on the maps and different treatment measures required were recommended.

Transect walk

1.2.4 Focus Group Discussions

Focus Group Discussions (FGD) were conducted in order to obtain communities' approval on various identified needs. It was helpful in complementing the assessment emerged from PRA and to derive the opinion of the communities on various issues.

Gram Sabha member's participation in group discussion

1.3 USE OF GIS TECHNOLOGY FOR PLANNING

Scientific tool has been promoted at various stages of watershed development planning.

Various maps were prepared such as Base map, Present Land Use, Drainage and Contours, Slope, Soil Classification, Land Capability Classification, Soil Fertility Status, Ground Water Depth and Quality, Proposed and existing activities of

works. All Watershed maps (micro- watershed) have been prepared using Soil and Land use Survey of India (SLUSI) maps with coding.

1.3.1 Prioritization

With the assistance of Geographical Information System (GIS), various layers were created like Topography (slope), Drainage and contour, Groundwater conditions, Slope, Soil, Soil fertility and Land Capability classes. All these parameters were given weightage as per the guidelines issued by Govt. of India. The map prepared was used during the field visit for finalization of works.

1.3.2 Planning

Based on the land use and Topographical maps in addition to social maps (PRA) prepared by the participants, analysis was carried out for the planning in micro- watersheds. The action plan was formulated using maps of Drainage pattern, Soil class, Soil erosion, forest, hydrology and present land use. The project proposals were deliberated in the Gram Sabha meetings which were approved with required amendments.

Based on the experience of the experts working in the area and catchment area characteristics each structure like Water conveyance system, Dug Out Pond (New/Renovation), Ramp/Ghat Inlet and Outlet, Roof top rain water recharge structures etc. were provided in consultation with the Gram Sabha Members. However finally only those activities are included which were suggested by the Gram Sabha according to their needs.

1.3.3 Hydrological modeling

The relevant hydrological parameters were used for delineation of micro- watersheds as per the existing drainage system. The works/ activities under drainage line treatment are proposed as per topography, present land use, site conditions and run- off in consultation with WC. These maps were generated as per SLUSI coding system. The maps are produced by developing different layers using GIS technology.

Table 1. Detail of scientific planning and inputs in IWMP projects

S.No.	Scientific Criteria/input used	Whether Scientific Criteria was used
A	**Planning**	
	Cluster approach	Yes
	Hydro-geological survey	Yes
	Contour Mapping	Yes
	Participatory net planning (PNP)	Yes
	Remote sensing data-especially soil	Yes
	Ridge to valley treatment	N.A.
	Online IT connectivity between	Yes
	1. Project and DRDA cell/ZP	Yes
	2. DRDA and SLNA	Yes
	3. SLNA and DoLR	Yes
	Availability of GIS layers	Yes
	1. Survey of India map/imagery /SLUSI map	Yes
	2. Micro- Watershed Boundary	Yes
	3. Drainage pattern	Yes

S.No.	Scientific Criteria/input used	Whether Scientific Criteria was used
	4. Soil (soil fertility status)	Yes
	5. Land use	Yes
	6. Ground water status	Yes
B	Inputs	-
	Bio pesticides	Yes
	Organic manure	Yes
	Vermin- compost	Yes
	Bio Fertilizer	Yes
	Water saving devices	Yes
	Mechanical tools	Yes
	Bio fencing	No
	Nutrient Budgeting	No
	Automatic water level recorder & sedimentation samplers	No

1.4 Preparation of Action Plan and Approval

Based on the need and problems in watershed area; a draft action plan was prepared and placed before the concerned watershed development committee as per schedule circulated by Additional Deputy Commissioner for approval of the Watershed Committees. After detailed deliberation and incorporation of relevant recommendation/ suggestions into the plan, the action plan was approved in the meeting of Gram Sabha. The resolution of each village falling in the watershed has been received. The record is available with the PIA and WAPCOS.

CHAPTER – 2

PROJECT BACKGROUND

2.1 PROJECT BACKGROUND

Integrated Watershed Management Programme (IWMP-III) project is falls in Jhajjar and Sahlawas block of Jhajjar district in Haryana state. The project is a cluster of eleven micro- watersheds namely Kheri Taluka Patoda (part) (2C5G6a1), Kahari (2C5G6a3), Amadalpur (2C5G6a3), Koka (2C5G6a7), Asadpur Khera(2C5G2b2), Machhrauli (Part) (2C5G2a7), Dadanpur (2C5G2a6), Subana (Part) (2C5G2c1), Bhatera (Part) (2C5G2g1), Kasni (Part) (2C5G2q7) + Samaspur Majra (Part) (2C5G2b3) and Dhakla (Part) (2C5G2c3). The total geographical area of the project is **6199 ha** out of which **4890 ha** has been undertaken to be treated under IWMP-III starting from year 2012-2013. The project is divided into eleven micro watersheds. The Base map is shown in Annexure I.

Table 1: Basic Project Information

Sr. No	Name of the project	Name of the micro watersheds	Code No.	Name of the villages	Block	District	Area of the Project (ha)	Area proposed to be treated (ha)	Total Project cost (Rs lacs)	PIA
1	Jhajjar	Kheri Taluka Patoda (Part)	2C5G6a1	Kheri Taluka Patoda (Part)	Jhajjar	Jhajjar	593	450	54	ASCO, Jhajjar
2		Kahari	2C5G6a3	Kahari	Jhajjar	Jhajjar	557	405	48.6	
3		Amadalpur	2C5G6a3	Amadalpur	Jhajjar	Jhajjar	556	490	58.8	
4		Koka	2C5G6a7	Koka	Jhajjar	Jhajjar	450	400	48	

Sr. No	Name of the project	Name of the micro watersheds	Code No.	Name of the villages	Block	District	Area of the Project (ha)	Area proposed to be treated (ha)	Total Project cost (Rs lacs)	PIA
5		Asadpur Khera	2C5G2b2	Asadpur Khera	Jhajjar	Jhajjar	494	450	54	
6		Machhrauli (part)	2C5G2a7	Machhrauli (part)	Jhajjar	Jhajjar	587	415	49.8	
7		Dadanpur	2C5G2a6	Dadanpur	Sahlawas	Jhajjar	597	490	58.8	
8		Subana (part)	2C5G2c1	Subana (part)	Sahlawas	Jhajjar	564	410	49.2	
9		Kasani (Part) + Samastpur Majra (Part)	2C5G2q7+ 2C5G2b3	Kasani (Part) + Samastpur Majra (Part)	Sahlawas	Jhajjar	683	495	59.4	
10		Dhalka (Part)	2C5G2c3	Dhalka (Part)	Sahlawas	Jhajjar	531	475	57	
11		Bhatera (Part)	2C5G2g1	Bhatera (Part)	Jhajjar	Jhajjar	587	410	49.2	
					Grand Total		**6199**	**4890**	**586.8**	

2.2 NEED OF WATERSHED DEVELOPMENT PROGRAMME

Watershed development programme is prioritized on the basis of thirteen parameters namely;

i. poverty index,
ii. percentage of SC,
iii. actual wages,
iv. percentage of small and marginal farmers,
v. ground water status,
vi. moisture index,

vii. area under rain fed agriculture,

viii. drinking water situation in the area ,

ix. percentage of degraded land,

x. productivity potential of land,

xi. continuity of any other watershed already developed/treated,

xii. cluster approach for plain terrain,

xiii. cluster approach for hilly terrain,

The criteria and weightage of each of the parameters has been given in **Table 2**.

Table 2. Criteria and Weightage for Selection of Watershed

S. No.	Criteria	Maximum Score	Ranges and Scores			
i.	Poverty index (% of poor to population)	10	Above 80 % (10)	80 to 50 % (7.5)	50 to 20 % (5)	Below 20% (2.5)
ii.	% of SC/ST population	10	More than 40 % (10)	20 to 40 % (5)	Less than 20% (3)	
iii.	Actual wages	5	Actual wages are significantly lower than minimum wages (5)	Actual wages are equal to or higher than minimum wages (0)		
iv.	% of small and marginal farmers	10	More than 80 % (10)	50 to 80 % (5)	Less than 50% (3)	
v.	Ground water status	5	Over exploited (5)	Critical (3)	Sub Critical (2)	Safe (0)
vi.	Moisture index/ DPAP/DDP block	15	-66.7 & below (15) DDP block	-33.3 to -66.6 (10) DPAP Block	0 to -33.2 (0) Non DPAP/DDP Block	
vii	Area under rain fed agriculture	15	More than 90 % (15)	80 to 90 % (10)	70 to 80 % (5)	Below 70 % (Reject)
viii	Drinking water	10	No source (10)	Problematic village (7.5)	Partially covered (5)	Fully covered(0)

S. No.	Criteria	Maximum Score	Ranges and Scores			
ix	Degraded land	15	High-above 20 % (15)	Medium-10 to 20 % (10)	Low-less than 10 % of TGA (5)	
x	Productivity potential of the land	15	Lands with low production & where productivity can be significantly enhanced with reasonable efforts (15)	Lands with moderate production & where productivity can be enhanced with reasonable efforts (10)	Lands with high production & where productivity can be marginally enhanced with reasonable efforts (5)	
xi	Contiguity to another watershed that has already been developed/treated	10	Contiguous to previously treated watershed & contiguity within the micro-watersheds in the project (10)	Contiguity within the micro-watersheds in the project but non contiguous to previously treated watershed (5)	Neither contiguous to previously treated watershed nor contiguity within the micro-watersheds in the project (0)	
xii	Cluster approach in the plains (More than one contiguous micro-watersheds in the project)	15	Above 6 micro-watersheds in cluster (15)	4 to 6 micro-watersheds in cluster (10)	2 to 4 micro-watersheds in cluster (5)	
xiii	Cluster approach in the hilly tract (More than one contiguous micro-watersheds in the project)	15	Above 5 micro-watersheds in cluster (15)	3 to 5 micro-watersheds in cluster (10)	2 to 3 micro-watersheds in cluster (5)	
	Total	**150**	**150**	**93**	**37**	**2.5**

Based on above criteria and weightage of 75.5 concerning these thirteen parameters, a composite ranking was given to Jhajjar Watershed (IWMP III) project as given in **Table- 3.**

The total numbers of families under BPL are in the range of 50-80% of the total number of households in the village. Hence a score of 7.5 was allotted. Rain fed agriculture is in the range of 70-80 percent. So the scoring is done 5. The ground water status of the project area is over-exploited and hence score 5 is given. The percentage of schedule castes in this watershed is less than 30 percent of the total population, hence 3 score was allotted. About 70 percent of the farmers are small and marginal in nature. Hence a composite rank of 5 is allotted. With all the parameters taken together gives the watershed score to be 75.5.

Table- 3: Weightage of the Project

S. No.	District	Name of the project	No. of micro-watersheds/villages proposed to be covered	Proposed project area (ha)	Type of project (Hilly/ Desert/ Others)	Proposed cost (Rs. in lakh)	Weight age under the criteria												
							i	ii	iii	iv	v	vi	vii	viii	ix	x	xi	xii	xiii	Total
1	Jhajjar	Jhajjar Watershed (IWMP III)	12	4890	Semi Arid	586.80	7.5	3	0	5	5	15	5	5	10	10	0	10	0	75.5

Table 4: Watershed Information

Name of the Project	No. of Micro-Watersheds to be Treated	Watershed codes	Watershed regime/type/order

Jhajjar Watershed (IWMP III)	11	2C5G6a1, 2C5G6a3, 2C5G6a7, 2C5G2b2, 2C5G2a7, 2C5G2a6, 2C5G2c1, 2C5G2g1, 2C5G2q7, 2C5G2b3 and 2C5G2c3	Others

2.3 OTHER ONGOING DEVELOPMENT PROJECTS / SCHEMES IN THE PROJECT VILLAGES

These villages being backward have been on top priority in number of developmental projects. These programmes are Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Total Sanitation Campaign (TSC), Swarnajaynti Gram Swarojgar Yogna (SGSY) and Indira Awas Yojana (IAY), NWDPRA. The programmes that are active in this area are tabulated in **Table 5.**

Table 5. Ongoing Developmental Programs in the Project Area

S. No.	Name of the Program /Project	Name of Micro watersheds	Sponsoring agency	Objective	Estimated number of beneficiaries for year 2012-13
1	MGNREGA	Kheri Taluka Patoda (Part)	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	180
2	MGNREGA	Kahari	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	182
3	MGNREGA	Amadalpur	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	51
4	MGNREGA	Koka	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	51
5	MGNREGA	Asadpur Khera	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	32

6	MGNREGA	Machhrauli (Part)	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	412
7	MGNREGA	Dadanpur	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	208
8	MGNREGA	Subana (Part)	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	40
9	MGNREGA	Kasani (Part) + Samastpur Majra (Part)	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	36
10	MGNREGA	Dhalka (Part)	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	96
11	MGNREGA	Bhatera (Part)	DRDA, Jhajjar	To provide assured employment of 100 days in a year to unskilled labour and development of village.	43

The District Rural Development Agency has undertaken various schemes under watershed development programme and the status is presented in **Table 6.**

Table 6: Previous Watershed Programme in the Project Area (if any)

Watershed Area Development Treated/Sanctioned						
			Micro- watersheds covered so far			
			Deptt. of Land Resources	**Other Ministries/ Deptt.**		
S. No	**Names of**	**Total micro watersheds in the District**	**Pre- IWMP projects (DPAP+DDP+IWDP)**	**Any other watershed project**	**Total watersheds covered**	**Net watersheds to be covered**

	District	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)	No.	Area (ha)
1	Jhajjar	323	177460	121	62393	0	0	121	62393	202 (balance) 34	115067 (balance) 14819

CHAPTER – 3

BASIC INFORMATION OF THE PROJECT AREA

GEOGRAPHY AND GEOHYDROLOGY

Jhajjar Watershed (IWMP III) falls in Jhajjar Block of District Jhajjar. The area of watershed lies in between 28˚23'10''to 28˚32'10'' N Latitude & 76˚31'30'' to 76˚41'50'' east longitude general elevation varies between 212-221 m MSL (google earth map) above mean sea level. The average rainfall of district is 455 mm. About 80 percent of its annual rainfall is received in the month of July to September. The Contour and Drainage map is presented in Annexure II.

3.1 LAND USE PATTERN

The village wise land use pattern is tabulated in **Table-1.** Land use map is shown in Annexure-III.

Table. 1 Land use pattern of Jhajjar Watershed (IWMP III)

Sr. No.	Name of Micro Watersheds With Code	Name of Villages	Geographical Area in (ha)	Treatable area of the village(ha)	Land under agriculture use (ha)	Rain fed area (ha)	Wasteland	
							Cultivable	Non-Cultivable
1	Kheri Taluka Patoda (Part)	Kheri Taluka Patoda (Part)	**593**	450	510	367	-	83
2	Kahari	Kahari	**557**	405	479	327	6	72
3	Amadalpur	Amadalpur	**556**	490	426	360	41	89
4	Koka	Koka	**450**	400	413	363	4	33
5	Asadpur Khera	Asadpur Khera	**494**	450	451	407	-	43
6	Machhrauli	Machhrauli	**587**	415	473	301	-	114

	(part)	(part)						
7	Dadanpur	Dadanpur	**597**	490	518	411	16	63
8	Subana (part)	Subana (part)	**564**	410	453	299	1	110
9	Kasani (Part) + Samastpur Majra (Part)	Kasani (Part) + Samastpur Majra (Part)	**413+270**	495	383+248	358	-	30+22
10	Dhalka (Part)	Dhalka (Part)	**531**	475	438	402	14	79
11	Bhatera (Part)	Bhatera (Part)	**587**	410	498	386	9	80
			6199	**4890**	**5290**	**3981**	91	818

(Source – District Census Handbook, 2001 Jhajjar)

3.2 SOIL AND TOPOGRAPHY

The soils of Jhajjar Watershed are very deep, sandy loam to clay loam or clay typic ustipssament, typic haplusteps, typic natrustalf and aeric ustifluvent. The topography of the area ranges from level to gentle slopes. Soils are subject to susceptible to moderate to severe water and wind erosion. The slope ranges from 0.5 to 3% and above most of the area of micro watersheds falls under level to gentle slopes on dune and level to nearly level in interdunal depressions. Slope map is presented in **Annexure IV.**

Table 2. Soil type and Topography

Sr. No.	Name of Micro Watersheds	Code	Geographical area (ha)	Major Soil types	Topography
1.	Kheri Taluka Patoda (Part)	2C5G6a1	**593**	Loamy sand to loam	Level to nearly level slope
2.	Kahari	2C5G6a3	**557**	Sandy loam to sandy clay loam	Level to nearly level slope
3.	Amadalpur	2C5G6a3	**556**	Sandy loam to sandy clay	Level to nearly level

				loam	slope
4.	Koka	2C5G6a7	**450**	Loamy sand to loam	Level to nearly level slope
5.	Asadpur Khera	2C5G2b2	**494**	Loamy sand to loam	Level to nearly level slope
6.	Machhrauli (part)	2C5G2a7	**587**	Loamy sand to loam	Level to nearly level slope
7.	Dadanpur	2C5G2a6	**597**	Loamy sand to loam	Level to nearly level slope
8.	Subana (part)	2C5G2c1	**564**	Loamy sand to loam	Level to nearly level slope
9.	Kasani (Part) + Samastpur Majra (Part)	2C5G2q7+ 2C5G2b3	**413+270**	Loamy sand to loam	Level to nearly level slope
10.	Dhalka (Part)	2C5G2c3	**531**	Sandy loam to sandy clay loam	Level to nearly level slope
11.	Bhatera (Part)	2C5G2g1	**587**	Sandy loam to sandy clay loam	Level to nearly level slope
			6199		

Source: - Department of Agriculture, Haryana

3.2.1 Flood and Drought Condition

There has been incidence of flood and drought in the watershed villages. The data collected from the revenue department reveals the instances of flood occur once in five Years and drought once in a five Year. The absence of assured irrigation and drought resulted in low to very low yields of the crops.

Table 3. Flood and Drought condition

Sr. No.	Name of Micro- watersheds	Flood Incidence	Drought Incidence
1.	Kheri Taluka Patoda (Part)	Once in 5 years	Once in a 5 years

2.	Kahari		
3.	Amadalpur		
4.	Koka		
5.	Asadpur Khera		
6.	Machhrauli (part)		
7.	Dadanpur		
8.	Subana (part)		
9.	Kasani (Part) + Samastpur Majra (Part)		
10.	Dhalka (Part)		
11.	Bhatera (Part)		

3.3 SOIL

3.3.1 Soil Erosion

In the identified eleven micro watersheds, it is observed that due to light texture & less vegetative cove the soil loss is comparatively high. To minimize the loss of soil in the watershed area the efforts are to be made in collective manner. This results in degradation of agricultural land, deforestation and low organic matter contents. Average annual rainfall is 455 mm of the area. In the watershed area the upper soil crest gets washed away in the form of runoff during rainy season. If heavy storm occurs also carries valuable top soil (sheet) and causes heavy losses. Soil erosion in respect of sheet is very severe. Majority of the watershed Community are dependent on agriculture. Agriculture suffers due to deficit rainfall in the region, resulting in further deterioration of socio economic conditions of community.

3.3.2 Soil Salinity/Alkalinity (Salinity ingress):

There is low to moderate soil salinity in the Project and pH is normal and within the limits of 6.8 to 8.5.

Based on the soil samples analysis and reports the village wise distribution of pH is tabulated and shown in Table. 4.

Table 4. Soil pH and Salinity

Sr. No.	Name of Micro Watersheds/ Villages	Soil pH	Type of salinity
1	Kheri Taluka Patoda (Part)	-	-
2	Kahari	8.2-8.4	Saline and water logged
3	Amadalpur	8.2-8.5	Saline and water logged
4	Koka	-	-
5	Asadpur Khera	7.1-7.2	Medium to safe
6	Machhrauli (part)	7.2-7.4	Medium to safe
7	Dadanpur	-	-
8	Subana (part)	7.6-8.2	Medium to safe
9	Kasani (Part) + Samastpur Majra (Part)	6.8-7.9	Medium to safe
10	Dhalka (Part)	-	-
11	Bhatera (Part)	7.6-8.1	Medium to safe

3.3.3 SOIL CLASSIFICATION

The Soil map is presented in **Annexure V.** The fertility status of the project area, reveales low level of available nitrogen and available phosphorus. However, the available potash is high. The fertility status map of the project area is exhibited in **Annexure-VI**.

3.3.4 Land Capability Classification

It is an interpretative grouping of soil based on inherent soil characteristics, external land features and environmental factors that limit the use of land. As per land capability classification, class 1 to class IV land is suited to agriculture. Classes V to VIII are not suitable for agriculture. These are used for pastures, forestry, and wildlife and recreation purposes and other industrial and township. Depending upon the degree of limitation and the kind of problems involved in management of soil, the land capability sub classes were indicated by adding the following limitation symbols to the capability classes:

1. Erosion and runoff (e) including risk of erosion and great erosion damage.
2. Excess of water (w) including wetness, high water table, and problem of drainage.
3. Root zone limitation (s) including shallow depth, low water holding capacity, salinity or alkalinity/rockiness.
4. Climate limitation (c).

The soil of the selected Watersheds have been grouped into three land capability classes. A brief description of each capability sub class is given as under and the **Land capability map is exhibited in Annexure-VII.**

Land capability subclass III e2s2

This soil is very deep, light to coarse loamy/ fine loamy texture located on level to nearly level slope. These are well drained, moderately permeable, moderate water holding capacity and moderate to severe erosion hazard.

Following recommendations are suggested for the economic use of this sub-class:

1. Land leveling should be done at 50% subsidy, because farmers are not economically capable to bear the rate of land leveling.
2. Engineering measures like Percolation Embankments and other related measures are to be under taken.
3. Agronomic measures like Dry farming, strip& Mixed cropping with other soil conservation measures like agro forestry and rainfed horticulture are recommended.
4. Green manuring should be promoted for increase physical and chemical properties of soil.
5. Masonry structure (outlet) should be constructed with field bandhs and percolation embankments for rills control and insitu moisture conservation.
6. Strengthening of old abandoned water courses.
7. Provide water storage tanks for storage of excess water for using supplementary irrigation during lean period.

Land capability subclass IV e3s3

This soil is very deep, light textured and nearly level lands. The water holding capacity is poor to very poor and the water erosion hazard is moderate to severe. The wind erosion is also a main cause to create undulating topography.

Following recommendations are suggested for the economic use of this sub-class:

1. Special soil conservation measures should be adopted to check water erosion and increase ground water recharge; soil should be provided permanent vegetation (Agro-forestry) cover to check further deterioration of soil.
2. Soil would be cultivated in suitable crop rotation with adopting dry farming techniques.
3. Masonry structure should be constructed in field bunds and percolation embankment.
4. Land leveling should be done at 50% subsidy, because formers are not economically capable to bear the rate of land leveling.
5. Construction of percolation ponds and embankments for increasing ground water recharge.
6. Construction of small earthen embankments with vegetative support for Sand dunes stabilization.
7. Strengthening of old abandoned water courses.
8. Provide water storage tanks for storage of excess water for using supplementary irrigation during lean period.

3.3.5 Climatic Conditions

The average rainfall of the district is 455 mm (during the past 10 year's data). The highest rainfall is 902 mm during the year 2003. The year wise rainfall from 2003 to 2012 is presented in **Table.5**

Table-5. Rainfall during the years 2003-12

S.No.	Year	Rainfall (in mm)
1	2003	902
2	2004	440
3	2005	556
4	2006	353
5	2007	270
6	2008	711
7	2009	460

8	2010	501
9	2011	239
10	2012	121
	Average Rainfall	**455**

(Source: - Deputy Director Agriculture, Jhajjar)

The mean maximum temperature is 40.5˚ C (May and June) and mean minimum is 7.0˚ C (January) of the district. The number of normal rainy days are 23 in the district.

3.3.6 Physiography and Reliefs

The general Elevation in the area belongs to stabilized sand dunes and Interdunal plains 212-221 m above mean sea level. The water is drained through fields and create temporary water logging conditions in depressions and along the canal**.** Upper area is badly affected by wind erosion due to absence of vegetative cover and uneven slopes. The elevation range and percentage slope distribution has been presented in **Table 6.**

Table 6. Physiography and Relief

Project Name	Elevation (MSL)	Slope Range (%)
Jhajjar Watershed (IWMP III)	212-221 m	0.5 to 3%

3.4 LAND AND AGRICULTURE

The land holding pattern of the villages under Jhajjar Watershed shows that the majority of the land holding is below 3.0 ha. The lack of assured irrigation source has forced the majority of the small farmers and landless labours of Watershed to migrate from village to ensure there, employment and livelihood to nearest Industrial towns is Bahadurgarh and NCR area. This affects directly the demographic profile of the villages.

The major crops Bajra, Gawar, green fodder and pulses in Kharif under rainfed conditions. The major crops during Rabi wheat, mustard, gram, green fodder and seasonal vegetables in rainfed and irrigated conditions. The soil and water conservation

measures such as Water conveyance system, Dug Out Pond (New/Renovation), Ramp/Ghat Inlet and Outlet, Roof top rain water recharge structures etc. The project would help the farmers to take crop production which will enhance the net production value. The following plants are commonly observed in the Project Area. The natural vegetation in the project area is exhibited in **Table 7.**

Table 7. NATURAL VEGETATION

Sr. No.	Trees	Fruits	Grasses and Shurbs
1	Safeda	Ber	Bui
2	Neem	Guava	Bhankri
3	Shisham	Jamun	Bathua
4	Bur	Mango	Sarkanda
5	Peepal		Kharsana
6	Jand		
7	Safeda		
8	Keekar		

3.4.1 Land Ownership Details

The Caste wise land owned (in ha) is Tabulated in Table 8.

Table-8:- Land Ownership Details

GENERAL	OBC	SC	ST	Total owners
4182	482	16	-	4680

3.4.2 AGRICULTURE/PATTERN

Table 9. Agriculture/ Pattern

Sr. No.	Name of Micro Watersheds/ Villages	Land under agriculture use (ha)	Net Sown area (ha)	
			One time	Two times
1	Kheri Taluka Patoda (Part)	510	322	421
2	Kahari	479	309	394
3	Amadalpur	426	270	355
4	Koka	413	274	341
5	Asadpur Khera	451	298	373
6	Machhrauli (part)	473	307	389
7	Dadanpur	518	334	429
8	Subana (part)	453	294	376
9	Kasani (Part) + Samastpur Majra (Part)	631	414	521
10	Dhalka (Part)	438	287	361
11	Bhatera (Part)	498	321	412
	Total	**5290**	**3430**	**4372**

(Source: Department of Agriculture, Haryana)

3.4.3 IRRIGATION

Lack of Assured Irrigation Facilities

The area falls under acute water stress category. The present source of irrigation is ground water where the area is underlain by fresh to marginal water quality. The remaining cultivable area is under rainfed agriculture. The present source of irrigation in the watershed has been tabulated in **Table 10.**

Table 10. Irrigation Pattern.

Sr. No.	Name of Micro Watersheds/ Villages	Source 1: Canal		Source 1: Groundwater (Tube wells)	
		Availability months	Net area (ha)	Availability months	Net area (ha)
1	Kheri Taluka Patoda (Part)	July to June	16	July to June	127

Sr. No.	Name of Micro Watersheds/ Villages	Source 1: Canal		Source 1: Groundwater (Tube wells)	
		Availability months	Net area (ha)	Availability months	Net area (ha)
2	Kahari	-	-	July to June	152
3	Amadalpur	-	-	July to June	66
4	Koka	-	-	July to June	50
5	Asadpur Khera	July to June	3	July to June	41
6	Machhrauli (part)	July to June	81	July to June	91
7	Dadanpur	July to June	36	July to June	71
8	Subana (part)	July to June	53	July to June	101
9	Kasani (Part) + Samastpur Majra (Part)	July to June	20	July to June	253
10	Dhalka (Part)	-	-	July to June	36
11	Bhatera (Part)	July to June	19	July to June	93
	Total		**228**		**1081**

(Source – District Census Handbook Jhajjar**)**

3.4.4 CROPPING PATTERN (crop details)

Cropping Pattern

The village wise area production and productivity of each crop is tabulated in **Table 11 A and 11 B** (Rabi and Kharif)**.**

Table 11 A. Crop Details (Rabi)

Sr. No	Name of Micro Watersheds	Village	Wheat				Mustard			
			Area (ha)	Prod. (Qtl.)	Productivity (Qtl./ha) Avg.	Use of fertilizer	Area (ha)	Prod. (Qtl.)	Productivity (Qtl./ha) Avg.	Use of fertilizer
1	IWMP-III	Kheri Taluka Patoda	1425	59850	42	DAP/Urea	85	1040	12	DAP/Urea

2		Kahri	279	11160	40	DAP/Urea	143	1716	12	DAP/Urea
3		Amadalpur	355	14200	40	DAP/Urea	90	990	11	DAP/Urea
4		Koka	85	3400	40	DAP/Urea	268	2948	11	DAP/Urea
5		Asadpur kera	131	5633	43	DAP/Urea	241	2651	11	DAP/Urea
6		Machroli	434	19093	44	DAP/Urea	364	4368	12	DAP/Urea
7		Dadanpur	362	15204	42	DAP/Urea	80	880	11	DAP/Urea
8		Subana	318	12120	40	DAP/Urea	49	539	11	DAP/Urea
9		Kasni	459	18360	40	DAP/Urea	239	2868	12	DAP/Urea
10		Saspur majra	428	17976	42	DAP/Urea	106	1272	12	DAP/Urea
11		Dhakla	424	18656	44	DAP/Urea	125	1500	12	DAP/Urea
12		Bhatera	509	21378	42	DAP/Urea	250	3000	12	DAP/Urea
			5209	**217030**			**2040**	**23772**		

Table 11 B. Crop Details (Kharif)

Sr. No	Village	Paddy				Bajra				Jawar		
		Area (ha)	Prod. (Qtl.)	Productivity (Qtl./ha) Avg.	Use of fertilizer	Area (ha)	Prod. (Qtl.)	Productivity (Qtl./ha) Avg.	Use of fertilizer	Area (ha)	Prod. (Qtl.)	Productivity (Qtl./ha) Avg.
1	Kheri Taluka Patoda	248	8184	33	Urea	122	1220	10	Urea	18	Fodder+10	10
2	Kahri	10	310	31	Urea	240	2640	11	Urea	26	Fodder+160	10

3	Amadalpur	86	2752	32	Urea	93	930	10	Urea	49	Fodder+300	10
4	Koka				Urea	36	396	11	Urea	5	Fodder	-
5	Asadpur kera	6	180	20	Urea	29	290	10	Urea	5	Fodder	-
6	Machroli	13	390	30	Urea	119	1190	10	Urea	52	Fodder+400	10
7	Dadanpur	68	2040	30	Urea	272	2992	11	Urea	55	Fodder+400	10
8	Subana	225	7200	32	Urea	275	3300	12	Urea	25	Fodder+180	9
9	Kasni	40	1200	30	Urea	337	4044	12	Urea	22	Fodder+120	10
10	Saspur majra	35	1120	32	Urea	180	1980	11	Urea	55	Fodder+495	9
11	Dhakla	21	631	31	Urea	58	580	10	Urea	25	Fodder+1200	10
12	Bhatera	42	1428	34	Urea	217	2604	12	Urea	40	Fodder+270	9
		794	**25435**			**1978**	**22166**			**377**		

3.4.5 Livestock

Farmers in these villages have already been keeping the milch animals; mostly buffalos. The milk production of these animals (local breeds) is low (**Table 12)**. There is a need for the improvement of the local breed through artificial insemination, proper vaccination and nutritive feed. Introduction of cross breed cows and murrah buffalo with better milk production will popularize dairy farming in the area. Also, the farmyard manure procured from these animals will help improve the soil health.

Table 12. Village Wise Distribution of Milk Production in Jhajjar Watershed (IWMP III)

Sr. No.	Village	Buffalo(* Lit/per day/annum6 months)	Cow (* Lit/per day/annum6 months)	Sheep	Goat	Camel
1	Kheri Taluka Patoda	1235/9262/1667250	59/206/37170	1000	19	0
2	Kahri	325/2275/409500	38/114/20520	92	29	0
3	Amadalpur	689/5512/992160	77/308/55440	148	14	0
4	Koka	328/2460/442800	28/98/17640	99	39	0

5	Asadpur kera	353/2471/444780	18/72/12960	25	25	0
6	Machroli	229/1946/350370	7/32/5670	121	47	0
7	Dadanpur	862/6465/1163700	180/630/113400	0	18	0
8	Subana	1206/8442/1519560	98/294/52920	33	17	0
9	Kasni	1771/14168/2550240	54/216/38880	0	16	0
10	Saspur majra	621/4657/838350	19/67/11970	0	0	0
11	Dhakla	1539/10773/1939140	50/200/36000	401	85	0
12	Bhatera	1405/11240/2023200	74/296/53280	320	49	0

(Source: Animal Husbandry, Jhajjar)

***Average yield of Buffalo is 7-8 lit/day and Average yield of Cow is 3-4 lit/day**

3.4.6 Ground Water Concern

a) Depth to Water

Ground Water Cell of Haryana has fixed hydrograph station scattered in the districts whose monitoring is undertaken during pre and post monsoon season. The water level data has been analyzed for the purpose of ground water studies in the watershed area. The ground water behavior in the watershed reveals the variation of depth to water level from 0.5 to 21 m below ground level. In Subana, Dhakla, Kasni and Koka micro- watersheds area have ground water level below 5 m depth. The remaining areas of the watershed have the depth range is 5-10 m and above. The depth to water level follows the topography of the area. The village wise water level data has been tabulated in **Table 13.** Depth to water level map has been prepared and presented in the **Annexure VIII.**

Table 13. Village Wise Depth to Water Level of Jhajjar Watershed (IWMP III)

Sr. No.	Name of micro	Name of village	Source	Pre- project (M)

	Watershed			
1	Kheri Taluka Patoda	Kheri Taluka Patoda	Well	20.75
2	Kahri	Kahri	Well	11.08
3	Amadalpur	Amadalpur	Well	7.40
4	koka	koka	Well	5.68
5	Asadpur kera	Asadpur kera	Well	7.48
6	Machroli	Machroli	Well	7.46
7	Dadanpur	Dadanpur	Well	7.42
8	Subana	Subana	Well	9.15
9	Kasni and Saspur majra	Kasni and Saspur majra	Well	2.81
10	Dhakla	Dhakla	Well	0.56
11	Bhatera	Bhatera	Well	-

The watershed area is underlain by three depth zones, less than 5 m, 5-10 m and more than 10 m. The block falls in critical category based on utilization of ground water resources. The area experiences water below 10 m needs recharging and the area under 1.5 m depth needs strengthening of drainage networks for reclaiming water-logged and saline lands.

The quality of the ground water is fresh and marginal in micro-watershed falling in villages Kasni, Damanpur, Batera, Amadalpur, Kheri Taluka Patoda and Kulana and remaining area is under the saline zone. The deeper aquifers are saline and unfit for drinking and agriculture purposes. The water quality map of the area is presented in **Annexure-IX**.

b) Water table fluctuation

In reference to the data available from the period June 1974 to June 2014, it is observed that the level of water table is marginally declining.

The Seasonal fluctuation is 19 cm in the area.

c) Rain water harvesting and Recharging

Conservation of ground water is important because it takes years to be replenished. In areas where ground water is used, care must be taken to replenish with rainwater in areas where minor irrigation unit i.e. shallow tubewell units are installed for irrigation minor.

It has been proposed to make rainwater-harvesting/recharging by construction of water harvesting/recharging structures in the areas where the water table is declining due to the exploitation of ground water.

3.4.7 DETAILS OF COMMON PROPERTY: The department of Panchayat has maintained the record of common property resources of area under various institutions. The data has been taken has been collected DDPO, Jhajjar. The details of common property resource in Jhajjar Watershed (IWMP III) are tabulated in **Table 14.**

Table 14. Detail of Common Property Resources

Data not available

3.5 SOCIO ECONOMIC AND LITERACY PROFILE

Land holdings: The area under the project is cultivated by small and marginal farmers. Almost 65 percent of the farmers fall under this category.

Poor economic conditions of farmers: The general socio economic condition of the farmers in this area are quite poor. They cannot use necessary agriculture inputs in a timely fashion due to financial constraints which adversely affects the crop yield.

Village wise household, total population and schedule caste population has been worked out from the census book and is tabulated in **table 15.** The literacy rate of micro watershed wise distribution is also exhibited in **Table 16**.

3.5.1 Demographic Status

Table 15. Demographic Status/ Population Pattern

Sr. No.	Name of Micro Watersheds/ Villages	Total no. of houses	Total Population			SC			
			Male	Female	Total	Male	Female	Total	%age
1	Kheri Taluka Patoda	634	1769	1602	3371	243	230	473	14.0
2	Kahri	335	915	807	1722	212	196	408	23.7
3	Amadalpur	341	958	881	1839	167	144	311	16.9
4	Koka	210	527	519	1046	96	109	205	19.6
5	Asadpur kera	236	638	567	1205	153	134	287	23.8
6	Machroli	796	2335	2118	4453	480	439	919	20.6
7	Dadanpur	464	1295	1202	2497	197	184	381	15.3
8	Subana	577	1653	1511	3164	178	174	352	11.1
9	Kasni	769	2177	1857	4034	294	240	534	13.2
10	Saspur majra	459	1301	1069	2370	287	244	531	22.4
11	Dhakla	832	2270	2063	4333	278	263	541	12.5
12	Bhatera	514	1419	1320	2739	316	309	625	22.8
	Total	**6167**	**17257**	**15516**	**32773**	**2901**	**2666**	**5567**	**17.0**

(Source- District Census 2011)

Table16. Literacy Rate in Jhajjar Watershed (IWMP III)

Sr. No.	Name of Micro Watersheds/ Villages	Total population	Literacy					
			Total Literates	% age	Male	% age	Female	% age
1	Kheri Taluka Patoda	3371	2417	71.7	1383	57.2	1034	42.8
2	Kahri	1722	1189	69.0	705	59.3	484	40.7
3	Amadalpur	1839	1299	70.6	768	59.1	531	40.9

4	Koka	1046	741	70.8	407	54.9	334	45.1
5	Asadpur kera	1205	797	66.1	488	61.2	309	38.8
6	Machroli	4453	3048	68.4	1782	58.5	1266	41.5
7	Dadanpur	2497	1675	67.1	978	58.4	697	41.6
8	Subana	3164	2097	66.3	1245	59.4	852	40.6
9	Kasni	4034	2709	67.2	1657	61.2	1052	38.8
10	Saspur majra	2370	1708	72.1	1047	61.3	661	38.7
11	Dhakla	4333	3058	70.6	1799	58.8	1259	41.2
12	Bhatera	2739	1845	67.4	1088	59.0	757	41.0
	Total	**32773**	**22583**	**68.9**	**13347**	**59.1**	**9236**	**40.9**

(Source- District Census- 2011)

Table 17. EMPLOYMENT STATUS

Sr. No.	Name of Micro Watersheds/ Villages	Schedule caste		Cultivators		Agricultural labourers		Household industry workers		Other workers	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1	Kheri Taluka Patoda	243	230	398	106	130	69	10	2	228	30
2	Kahri	212	196	211	152	50	28	3	0	133	14
3	Amadalpur	167	144	237	8	19	4	4	1	113	8
4	Koka	96	109	124	8	10	0	0	0	57	9
5	Asadpur kera	153	134	97	13	16	1	0	0	108	7
6	Machroli	480	439	514	208	256	83	27	10	413	413
7	Dadanpur	197	184	288	77	72	32	13	8	158	29
8	Subana	178	174	446	284	99	95	18	12	133	24
9	Kasni	294	240	522	28	48	1	11	1	376	27
10	Saspur majra	287	244	267	12	15	3	5	0	170	29
11	Dhakla	278	263	600	15	23	1	5	0	300	49
12	Bhatera	316	309	280	9	47	8	11	0	248	28
	Total	**2901**	**2666**	**3984**	**920**	**785**	**325**	**107**	**34**	**2437**	**667**

Source: Census 2011

3.5.2 MIGRATION PATTERN

The major reason for migration is lack of employment opportunities, small uneconomical holding, and lack of fodder availability in summer etc. The village wise migration, period, reason for migration and probe able income generation has been compiled and shown in **Table 18.**

Table 18. Migration Pattern in Jhajjar Watershed (IWMP III)

Sr. No.	Name of Micro Watersheds/ Villages	Total Population	No. of persons migrating	No. of days per year of migration	Main reason for migration	Income during migration/ month/person
1	Kheri Taluka Patoda	3371	-	-	-	
2	Kahri	1722	50	6 months	Lack of employment opportunity	3500
3	Amadalpur	1839	-	-	-	
4	Koka	1046	-	-	-	
5	Asadpur kera	1205	-	-	-	
6	Machroli	4453	-	-	-	
7	Dadanpur	2497	50	6 months	Lack of employment opportunity	3000
8	Subana	3164	40	6 months	Lack of employment opportunity	4000
9	Kasni	4034	60	6 months	Lack of employment opportunity	4200
10	Saspur majra	2370	100	6 months	Lack of employment opportunity	3200
11	Dhakla	4333	50	6 months	Lack of employment opportunity	4500
12	Bhatera	2739	-	-	-	-

POVERTY: The distribution of the BPL and their percentage is presented in table 19.

Table 19. BPL Pattern

Sr. No.	Name of villages	Total houses	Total Household- BPL	% of BPL HH
1	Kheri Taluka Patoda (Part)	634	193	30.4
2	Kahari	335	99	29.6
3	Amadalpur	341	185	54.3
4	Koka	210	38	18.1
5	Asadpur Khera	236	80	33.9
6	Machhrauli (Part)	796	204	25.6
7	Dadanpur	464	114	24.6
8	Subana (Part)	577	180	31.2
9	Kasani (Part) +	769	185	24.1
	Samastpur Majra (Part)	459	146	31.8
10	Dhalka (Part)	832	150	18.0
11	Bhatera (Part)	514	300	58.4
		6167	**1874**	**30.4**

(Source: District Administration Jhajjar, Haryana)

INFRASTRUCTURE DETAILS

All the villages are well connected by pucca road and primary or middle school exists in all villages. Health facilities are available in villages and have easy access to Health Centers. The village wise details of infrastructure are shown in **Table 20** and the facilities/ household assets in the villages under watershed is shown in **Table 21**.

Table 20. Village Infrastructure

Sr. No.	Name of Micro watersheds	Name of villages	Bank Y/N	Post office Y/N	School Primary/ High/ Sr.Sec	Milk Collection Centre Y/N	Pucca Road to Village Y/N	Health Facility Govt/Private Y/N	Veterinary facility Y/N
1	Kheri Taluka Patoda	Kheri Taluka Patoda	N	N	Y	N		n	Y
2	Kahri	Kahri	N	Y	Y	Y (P)	Y	y	N

3	Amadalpur	Amadalpur	N	n	Y P, H	Y (P)	Y	n	N
4	Koka	Koka	N	n	Y pri	N	Y	n	N
5	Asadpur kera	Asadpur kera	N	N	Y Pri	N	Y	N	N
6	Machroli	Machroli							
7	Dadanpur	Dadanpur	N	Y	Y2	Y(P)	Y	y	Y
8	Subana	Subana	Y	Y	Y	y	Y	Y	Y
9	Kasni and Saspur majra	Kasni	Y	Y	Y2Pri , 1 High	Y	Y	Y	Y
		Saspur majra	N	Y	Y	Y	Y	N	N
10	Dhakla	Dhakla	Y	Y	Y	Y	Y	CHC	Y
11	Bhatera	Bhatera	N	Y	Y	N	Y	Y	N

FACILITIES/ HOUSEHOLD ASSETS

Table 21. Facilities/ Household assets in Jhajjar Watershed (IWMP III)

Sr. No.	Name of villages	Total no. of Houses	HHs with Safe latrines	HHs with phones		HHs with vehicles		HHs with TV sets	HHs with cooking gas	HHs with drinking water	HHs with fridge
				Landline	Mobile	2 wheelers	4 wheelers				
1	Kheri Taluka Patoda (Part)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	Kahari	450	400	4	900	40	4 (25 Tractors)	250	250	350	150
3	Amadalpur	500	430	-	500	150	3 (70 Tractors)	180	250	500	200
4	Koka	250	200	-	500	100	--(40 Tractors	180	150	200	150
5	Asadpur Khera	300	275	10	400	200	4 (20 Tractors)	220	200	300	180
6	Machhrauli (Part)										
7	Dadanpur	410	320	-	1100	1000	5 (50 Tractors)	285	300	-	375

Sr. No.	Name of villages	Total no. of Houses	HHs with Safe latrines	HHs with phones		HHs with vehicles		HHs with TV sets	HHs with cooking gas	HHs with drinking water	HHs with fridge
				Landline	Mobile	2 wheelers	4 wheelers				
8	Subana (Part)	750	550	10	1500	120	4 (150 Tractors)	600	400	400	400
9	Kasani (Part) +	1000	750	-	-	350	10 (100 Tractors)	800	500	70	500
	Samastpur Majra (Part)	600	400	-	1100	150	10 (100 Tractors)	450	450	-	300
10	Dhalka (Part)	1970	1200	6	2000	500	4 (200 Tractors)	1600	1000	200	1000
11	Bhatera (Part)	700	600	-	1200	350	6 (85 Tractors)	400	500	200	260

3.5.3 LIVELIHOOD PATTERN: The livelihood from agriculture, animal husbandry, casual labour and others in the micro watershed (village wise) is shown in table 22.There is no major income from the common property resource to the individuals.

Table 22. Per capita (Household) income Jhajjar Watershed (IWMP III)

Sr. No.	Name of villages	Agriculture in Rs. P.A	Animal Husbandry in Rs. P.A	Casual labour in Rs. P.A	Others in Rs. P.A	Total income Rs.
1	Kheri Taluka Patoda (Part)	12000	7000	4800	2500	**26300**
2	Kahari	13000	7500	5500	2800	**28800**
3	Amadalpur	12000	8500	5000	3000	**28500**
4	Koka	13500	9000	4500	3500	**30500**
5	Asadpur Khera	9000	8500	4000	2900	**24400**
6	Machhrauli (Part)	11000	8000	4700	4000	**27700**
7	Dadanpur	11500	7500	4500	4500	**28000**
8	Subana (Part)	12000	8500	5000	3000	**28500**
9	Kasani (Part) +	16000	8000	4000	3500	**31500**

	Samastpur Majra (Part)	9500	6500	5000	3500	**24500**
10	Dhalka (Part)	11500	8000	4700	4000	**28200**
11	Bhatera (Part)	13500	7500	6000	2800	**29800**

3.5.4 Comparative Status of crop Productivity

Three major crops namely Wheat, Mustard, Bajra and Gwar are sown in Watershed villages. Though, main crop grown in this area is Wheat, Mustard, Bajra and Gwar. Compared to rest of the district and the state, the average yield of these crops is quite low.

3.6 REASONS FOR LOW PRODUCTIVITY

- Lack of assured irrigation for agriculture.
- Poor availability and quality of ground water.
- Irregular and erratic rainfall: there is long span between two subsequent rainfalls in the area.
- Sudden change in climate of the area.
- Low organic carbon content.
- Poor physical and chemical properties of the soil are light in texture with boulders in pockets and poor fertility.

- Low water holding/ retention capacity.
- Moderate to rapid permeability.
- Poor phosphorous and medium potash nutrients availability.
- Acceptance of hybrid/ high yielding varieties are nil to negligible.
- Soil erosion.
- Essential micro- nutrient deficiency in the soil.
- Dependence of monsoon.
- Low fertilizer consumption per unit cropped area.
- Lack of economic condition of farmers.
- Lack of good quality of seeds and fertilizer.
- Lack of post harvesting facilities such as storage and marketing.

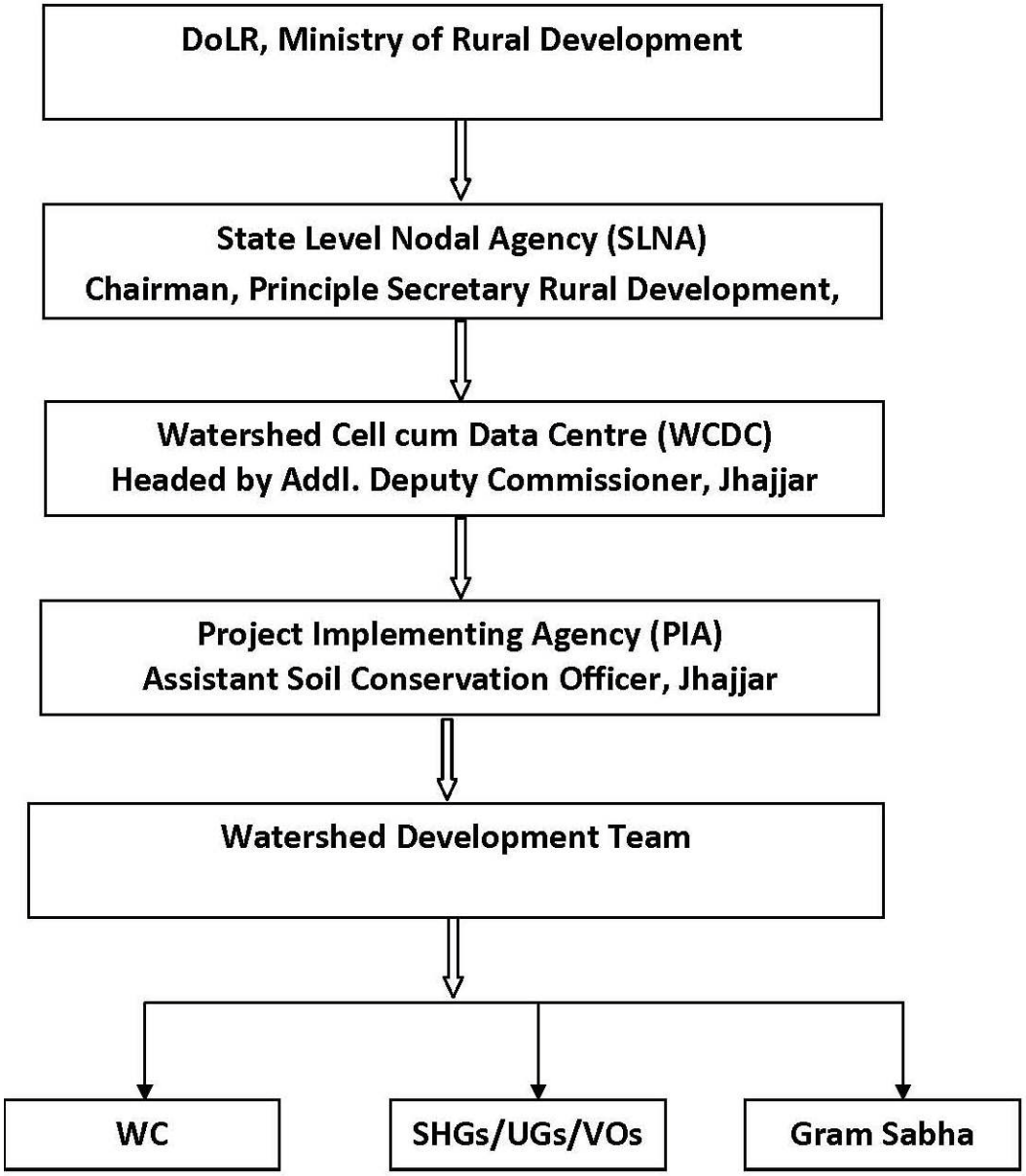
CHAPTER-4

PROJECT MANAGEMENT AGENCIES

4.1 INSTITUTIONAL ARRANGEMENT

Institutions play a major role in managing the projects. Realizing the importance of Community Participation, Decentralized Participatory Approach has been adopted for Watershed Management. Following decentralization and to achieve the objectives, there is a dire need for establishment of Institutional set up from National to Village Level (Micro Watershed Level), including cluster (Watershed Level) and district level. These institutions need to be oriented from time to time and also empowered so that they take up the assigned tasks and work as per their responsibilities from the start of the program to effective management of Project. Considering the prevalent circumstances, these institutions should take decisions at their respective level. The involvement and participation of beneficiaries and other stakeholders is desired to be encouraged right from the planning stage.

The institutional set up is given below:


DoLR, Ministry of Rural Development
State Level Nodal Agency (SLNA)
Chairman, Principle Secretary Rural Development,
Watershed Cell cum Data Centre (WCDC)
Headed by Addl. Deputy Commissioner, Jhajjar
Project Implementing Agency (PIA)
Assistant Soil Conservation Officer, Jhajjar
Watershed Development Team
WC
SHGs/UGs/VOs
Gram Sabha

4.2 STATE LEVEL NODAL AGENCY, HARYANA

State Level Nodal Agency (SLNA) is headed by Chief Executive Officer and supported by Technical Experts is fully functional. The regular meetings with PIA and other stake holders are held to provide necessary guidance to them as per the revised, common guidelines, 2011. The main functions of SLNA are:

- ❖ To implement the approved perspective and strategy plan of watershed development for the state.
- ❖ Acts as Nodal Agency at State Level for appraisal and clearance.
- ❖ To establish and maintain a State Level data cell from the funds sanctioned to the State and connect it online with the National Level Data Centre.
- ❖ To provide technical support to Watershed Cell cum Data Centre throughout the state.
- ❖ To approve a list of independent institutions for capacity building of various stakeholders within the state and work out the overall capacity building strategy in consultation with NRAA/Nodal Ministry.
- ❖ To approve project implementing agencies identified/selected by WCDC/District Level Committee by adopting appropriate objective selection criteria and transparent systems.
- ❖ To establish monitoring, evaluation and learning systems at various levels (Internal and external/independent system).
- ❖ To ensure regular and quality online monitoring of watershed projects in the State in association with Nodal Agency at the Central Level and securing feedback by developing partnerships with independent and capable agencies.

4.3 WATERSHED CELL CUM DATA CENTRE, JHAJJAR

WCDC has been notified by SLNA and the same has been constituted. The team comprises of 3 to 4 subject matter specialists on Agriculture, Water Management, Social Mobilization and Management & Accounts. WCDC is be headed by

Deputy Commissioner and Additional Deputy Commissioner has been designated as Project Manager under IWMP. The WCDC members comprise of Technical Expert, Computer Operator and Accountant. As per guideline 3 to 6 full time staff (3 in district with less than 25000 ha project area and 6 in districts with more than 25000 ha project area) would assist the Project Manager. The Project Manager will prepare well defined annual goals against which the performance will be monitored. The WCDC will be financially supported by the DoLR after review of available staff, infrastructure and actual requirement.

Organization of WCDC and its Objective

The primary objective is successful implementation of watershed programme. The organization bears the responsibility to assist and facilitate PIA from time to time. The broad functions of WCDC are as under:

- Providing technical support in planning and implementation of the project.
- Facilitation in preparation of Annual Action Plan.
- Monitoring and of project activities.
- Co-ordination with allied departments.
- Submission of various reports to SLNA.

4.4 Project Implementation Agency

The project Implementing Agencies (PIA), ASCO Jhajjar is selected by the State Level Nodal Agency (SLNA) for Integrated Watershed Management Programme (IWMP) in Haryana. In the district Jhajjar, where the area of development is 14819 ha, a separate dedicated unit, called the Watershed Cell cum Data Centre has been established which will oversee the implementation of watershed programme. The PIA is responsible for implementation of watershed project.

Soils and Water Conservation Department, Jhajjar. He has a vast experience in implementing various watershed development Projects.

PIA will put dedicated watershed development team and will provide necessary technical guidance to the Gram Sabha /Watershed Committee for implementation of development plans for the watershed projects through Participatory Rural Appraisal Exercise.

PIA will also undertake:

a) Community Organization,
b) Trainings for the village communities,
c) Supervise Watershed Development Activities,
d) Inspect & authenticate project accounts,
e) Monitor & review the overall project implementation,
f) Set up institutional arrangements for post project operations and
g) Maintenance and further development of the assets created during the project period.

Table 1. PIA/ Project Implementing Agency

S.No.	Name of the Project	Details of PIA	
1	Jhajjar Watershed (IWMP-III)	i) Type of organization	District Level Nodal Agency
		ii) Name of organization	District Watershed Development Unit
		iii) Designation & Address	Assistant Soil Conservation Officer, Jhajjar
		iv) Telephone	-
		v) Fax	-
		vi) E-mail	ascojhajjar@gmail.com

The PIA is well competent to effectively manage this project and has a good rapport with the village community. The watershed committee members are giving them positive response in the preparatory phase. The overall responsibility of the PIA would be to oversee the project progresses well and to provide technical knowhow as when required. PIA has qualified and highly experienced staff to accomplish this task and take this project forward for its logical conclusion. PIA will be assisted by the Watershed Development Team.

4.4.1 Monitoring Level Staff at PIA Head Office

The highly experienced staff is engaged in the monitoring the project. The technical guidance to field staff from time to time is being provided. Meetings are being periodically held by head office with officials from the Jhajjar district to apprise themselves of the status of ongoing project.

4.5 Watershed Development Team

The watershed development team (WDT) is an integral part of the PIA. WDT would consist of subject specialists such as Agriculture, Animal Husbandry, Horticulture, Soil & Water Management and Forest. One woman member with experience in Social mobilization is also included in WDT. Assistant Soil Conservation Officer would be team leader of the WDTs. Team Leader will coordinate with other WDT members for smooth implementation of the project. One member of the WDT will be departmental official of the rank ADO (Soil Conservation)/ ADO (Agriculture) who will also be responsible for disbursement of funds along with Secretary Watershed Committee.

WDT will guide the watershed committee in the formulation of watershed action plan. An indicative list of the roles and responsibilities of the WDT would include among others, the following.

a) Constitution of Watershed Committee and its functioning,
b) Organizing and strengthening User groups, Self Help Groups,
c) Mobilizing women to ensure that the perspectives and interests of women are adequately reflected in the watershed action plan
d) Conducting Training and Capacity Building,
e) Common property resource management and equitable sharing
f) Preparing detailed resource development plan including Soil & Water Conservation,
g) Undertake engineering surveys,
h) Prepare engineering drawings and cost estimate for structures to be built.
i) Monitoring, checking, assessing, undertaking physical verification and measurements of the work done
j) Facilitating the development of livelihood opportunities for the landless
k) Maintaining project accounts
l) Arranging physical, financial and social audit of the work undertaken
m) Setting up suitable arrangements for post- project operation, maintenance and future development of the assets created during the project period.

4.6 WATERSHED COMMITTEE DETAILS

The process of formation of watershed committees of all villages has been completed and watershed committees have been formed in all villages. The representation on these committees consists of members from- SC, landless, women and members from self help groups and user groups. The committees would be imparted training for smooth management of the activities related to watershed.

Their representation of various groups is as under:

- ❖ Minimum of 50% members from SHGs and UGs, SCs, women and landless.
- ❖ One member from Watershed Development Team, especially women member (subject matter specialist in Social Science).

The Govt. of Haryana vide department memo No. PO (IWMP)-2012/1479 dated 05.03.2012 has decided to include the following members as members of the Watershed Committees.

- ❖ All alive ex-Sarpanches of concerned Gram Panchayats,
- ❖ Concerned member of Panchayat Samiti,
- ❖ Concerned member of Zila Parishad,

One of the members of Watershed Committees is nominated as Watershed Secretary to perform the following duties:

- ❖ Convening meetings of Watershed Committee, Gram Sabha,
- ❖ Maintaining all records and proceedings of the meetings.
- ❖ Follow up action on all decisions taken in the meetings.
- ❖ Ensuring people's participation.

4.6.1 Formation of Watershed Committees (WC)

The watershed committee has been constituted as per the guidelines para 6.3 (44) after convening a meeting of Gram Sabha. The schedule of the meeting was circulated by the Additional Deputy Commissioner well in advance. The watershed committees were constituted in each village as detailed in **Table 2.**

Table 2. Watershed Committees (WC) Details

Name of Micro Watersheds/ Villages	Name of President	Name of Members
Kheri Taluka Patoda	Smt. Kusum Lata	Pardeep, Sunita, Saroj, Maan Singh, Santosh, Vijaypal, Bheem Singh, Rekha Devi, Mahender, Yashbir, Mantosh and Jai Parkash
Kahari	Smt. Chanderpati	Rameshwar, Kasi Ram, Satbir, Hawa Singh, Umed Singh, Sheela Devi, Krishnavati, Bheem Singh, Rekha Devi, Ombir and Jai Bhagwan
Amadalpur	Smt. Anil	Surajbhan, Anil Devi, Hanshraj, Jai Naraian, Sanjay Singh, Rekha, Ramphool, Manbir, Santosh, Mukesha and Shyam
Koka	Naresh	Prema, Satpal, Babli, Ravinder, Rekha, Jagatpal, Mukesh and Kabita
Asadpur kheda	Vijay Kumar	Rekha, Ravinder, Ishwar, Muglesh, Lalchand, Ram Singh, Bhupender, Manjeet, Mukesh and Sumitra
Machroli	Ajit Singh	Sunita, Ramphal, Kamlesh, Hosiyar, Vinod, Bhay Ram, Suresh and Rekha
Dadanpur	Azadpur	Dhanpati, Santosh, Bhateri, Jai Singh, Ram Mehar, Maan Singh, Vikas, Rekha, Shri Bhagwan, Krishan, Sushila, Sumitra and Ajit Kaur
Kasni	Kude Ram	Sumitra, Rameshwar, Seema, Rameshwar, Dharampal, Umrao, Vijay, Munni, Jai Bhagwan, Anil and Satbir
Subana	Bhateri	Naraini, Hukam Chand, Ramesh, Suraij Rekha, Gaje Singh, Sunita, Bijender, Jagdish, Neeraj and Bijender
Samaspur majara	Smt. Nirmala Devi	Surajbhan, Dharampal, Santosh, Om Parkash, Ramkumar, Santra Devi, Vijay Kumar, Munni Devi, Roshan, Satvanti and Leela Ram
Dhakla	Smt. Poonam Devi	Guddi, Shyamphool, Dhanpati, Raju, Ranbir, Ramphal, Sant Ram, Jagdev, Rajesh, Kamlesh and Mangeram
Bhatera	Mahavi Singh	Lakhiram, Shri Om, Bhagat Singh, Sushila, Ramdas, Jailal, Bugli, Janak Singh, Jai Kisan, Nafe Singh, Khushi Ram and Geeta

As per the Government decision, Sarpanch of the village is the chairman of the watershed committee. The Secretary of the Watershed Committee has been appointed by the Watershed Committee in the meeting of Gram Sabha. The Secretary will be paid honorarium and would be independent from the functioning of Panchayat Secretary. The secretary would be dedicated in the project activities and would take care of the watershed supervision and would be fully responsible for organizing the meeting and maintenance of records. The main responsibilities of secretary are as under:

- Convening the meeting and recording the minutes of WC meeting and will be responsible for follow up the decision taken by the WC Committee.
- The secretary will be responsible for financial transactions of the project and will sign the cheques with WDT nominee on the behalf of WC.
- He will motivate the villagers for voluntary contribution and ensure equitable distribution of resources.

4.7 INSTITUTIONAL SETUP AT WATERSHED LEVEL

4.7.1 Self Help Groups

The formation of the self help group in all the villages is underway. It is proposed to form at least 2 self help group in each village. In each village Self Help Groups consisting of 10 to 15 members having common goal are being formed. The members of SHGs would be drawn from very poor families, BPL families, SC families, Land less families, Small and Marginal farmers SHG would be homogeneous in nature and would work together for their socio-economic up-liftment. SHGs need to be imparted. Under the project, each SHGs would be given revolving fund Rs. 25000 each after 6 months of the date of formation. The income generating activities would be identified. For adopting economic activities would

depend upon the decision of Self Help Group. Accordingly the Orientation and Trainings for their skill up gradation would be arranged in the project as activity. It is the responsibility of Watershed Committee to form SHGs in their respective villages under the guidance of Watershed Development Team and Project Implementing Agency.

4.7.2 User Groups

The Watershed Committee will constitute user group in the watershed area with the help of the WDT. In each Watershed village, user groups are also being formed. Members of these groups would be the beneficiaries of the Watershed project. User group are formed to manage the activities and also asset created under the programme on the long term basis. These groups would also be homogeneous in nature. User groups shall be given technical support as and when required by Watershed Committee and Watershed Development Team. During the preparatory stage while discussing with the Gram Sabha member it was decided that each group would formulate certain internal rules and have a feeling of ownership with community spirit. The members would be from various categories like landless, small farmer, marginal farmer and large farmer.

CHAPTER- 5

BUDGETING

MICRO WATERSHED WISE/COMPONENTS AND THEIR YEAR WISE PHASING BUDGET UNDER IWMP

IWMP- III JHAJJAR WATERSHED

5.1 BUDGETING

The State Level Nodal Agency will distribute funds to WCDC keeping in view the detailed annual action plan of each micro- watershed. The expenditure under the various component of the project will be carried out as per the guidelines. The activity wise allocations of funds as per the provision of budget components have been work out and exhibited in table. 1. The first step in the budgeting is dividing the cost of project into various components as detailed in the revised common guidelines. It would help the PIA in further identifying activities under different components and allocate appropriate funds.

MICRO WATERSHED WISE / COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP III

Area in Hectares and Funds in Rs.

Table 1. Activity wise allocation of funds for Project Village

(BUDGET AT A GLANCE)

Name of the project	Project Area	Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
Jhajjar Watershed (IWMP III)	6199	4890	58680000	Administrative costs	586800	586800	1760400	1760400	1173600	**5868000**
				Monitoring	0	0	0	586800	0	**586800**
				Evaluation	0	146700	146700	146700	146700	**586800**
				Entry point activities	2347200	0	0	0	0	**2347200**
				Institution and capacity building	0	2934000	0	0	0	**2934000**
				Detailed project report	586800	0	0	0	0	**586800**
				Watershed development works	0	4694400	9388800	9975600	8802000	**32860800**
				Livelihood activities for the asset less persons	0	0	1760400	2934000	586800	**5281200**
				Production system and micro enterprises	0	0	1760400	2347200	1760400	**5868000**
				Consolidation phase	0	0	0	0	1760400	**1760400**
				Total	**3520800**	**8361900**	**14816700**	**17750700**	**14229900**	**58680000**
				Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and Funds in Rs.

Table 2. PHASING YEAR WISE (Name of the Micro Watershed: Kheri Taluka Patoda)

(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
450	5400000	Administrative costs	54000	54000	162000	162000	108000	**540000**
		Monitoring	0	0	0	54000	0	**54000**
		Evaluation	0	13500	13500	13500	13500	**54000**
		Entry point activities	216000	0	0	0	0	**216000**
		Institution and capacity building	0	270000	0	0	0	**270000**
		Detailed project report	54000	0	0	0	0	**54000**
		Watershed development works	0	432000	864000	918000	810000	**3024000**
		Livelihood activities for the asset less persons	0	0	162000	270000	54000	**486000**
		Production system and micro enterprises	0	0	162000	216000	162000	**540000**
		Consolidation phase	0	0	0	0	162000	**162000**
		Total	**324000**	**769500**	**1363500**	**1633500**	**1309500**	**5400000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and
Funds in Rs.

Table 3. PHASING YEAR WISE (Name of the Micro Watershed: Kahari)

(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
405	4860000	Administrative costs	48600	48600	145800	145800	97200	**486000**
		Monitoring	0	0	0	48600	0	**48600**
		Evaluation	0	12150	12150	12150	12150	**48600**
		Entry point activities	194400	0	0	0	0	**194400**
		Institution and capacity building	0	243000	0	0	0	**243000**
		Detailed project report	48600	0	0	0	0	**48600**
		Watershed development works	0	388800	777600	826200	729000	**2721600**
		Livelihood activities for the asset less persons	0	0	145800	243000	48600	**437400**
		Production system and micro enterprises	0	0	145800	194400	145800	**486000**
		Consolidation phase	0	0	0	0	145800	**145800**
		Total	**291600**	**692550**	**1227150**	**1470150**	**1178550**	**4860000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING

YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and

Funds in Rs.

Table 4. PHASING YEAR WISE (Name of the Micro Watershed: Amadalpur) (BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
490	5880000	Administrative costs	58800	58800	176400	176400	117600	**588000**
		Monitoring	0	0	0	58800	0	**58800**
		Evaluation	0	14700	14700	14700	14700	**58800**
		Entry point activities	235200	0	0	0	0	**235200**
		Institution and capacity building	0	294000	0	0	0	**294000**
		Detailed project report	58800	0	0	0	0	**58800**
		Watershed development works	0	470400	940800	999600	882000	**3292800**
		Livelihood activities for the asset less persons	0	0	176400	294000	58800	**529200**
		Production system and micro enterprises	0	0	176400	235200	176400	**588000**
		Consolidation phase	0	0	0	0	176400	**176400**
		Total	**352800**	**837900**	**1484700**	**1778700**	**1425900**	**5880000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and Funds in Rs.

Table 5. PHASING YEAR WISE (Name of the Micro Watershed: Koka)

(**BUDGET AT A GLANCE)**

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
400	4800000	Administrative costs	48000	48000	144000	144000	96000	**480000**
		Monitoring	0	0	0	48000	0	**48000**
		Evaluation	0	12000	12000	12000	12000	**48000**
		Entry point activities	192000	0	0	0	0	**192000**
		Institution and capacity building	0	240000	0	0	0	**240000**
		Detailed project report	48000	0	0	0	0	**48000**
		Watershed development works	0	384000	768000	816000	720000	**2688000**
		Livelihood activities for the asset less persons	0	0	144000	240000	48000	**432000**
		Production system and micro enterprises	0	0	144000	192000	144000	**480000**
		Consolidation phase	0	0	0	0	144000	**144000**
		Total	**288000**	**684000**	**1212000**	**1452000**	**1164000**	**4800000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and Funds in Rs.

Table 6. PHASING YEAR WISE (Name of the Micro Watershed: Asadpur Khera)

(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
450	5400000	Administrative costs	54000	54000	162000	162000	108000	**540000**
		Monitoring	0	0	0	54000	0	**54000**
		Evaluation	0	13500	13500	13500	13500	**54000**
		Entry point activities	216000	0	0	0	0	**216000**
		Institution and capacity building	0	270000	0	0	0	**270000**
		Detailed project report	54000	0	0	0	0	**54000**
		Watershed development works	0	432000	864000	918000	810000	**3024000**
		Livelihood activities for the asset less persons	0	0	162000	270000	54000	**486000**
		Production system and micro enterprises	0	0	162000	216000	162000	**540000**
		Consolidation phase	0	0	0	0	162000	**162000**
		Total	**324000**	**769500**	**1363500**	**1633500**	**1309500**	**5400000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and
Funds in Rs.

Table 7. PHASING YEAR WISE (Name of the Micro Watershed: Machhrauli)
(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
415	4980000	Administrative costs	49800	49800	149400	149400	99600	**498000**
		Monitoring	0	0	0	49800	0	**49800**
		Evaluation	0	12450	12450	12450	12450	**49800**
		Entry point activities	199200	0	0	0	0	**199200**
		Institution and capacity building	0	249000	0	0	0	**249000**
		Detailed project report	49800	0	0	0	0	**49800**
		Watershed development works	0	398400	796800	846600	747000	**2788800**
		Livelihood activities for the asset less persons	0	0	149400	249000	49800	**448200**
		Production system and micro enterprises	0	0	149400	199200	149400	**498000**
		Consolidation phase	0	0	0	0	149400	**149400**
		Total	**298800**	**709650**	**1257450**	**1506450**	**1207650**	**4980000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and
Funds in Rs.

Table 8. PHASING YEAR WISE (Name of the Micro Watershed: Dadanpur)
(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
490	5880000	Administrative costs	58800	58800	176400	176400	117600	**588000**
		Monitoring	0	0	0	58800	0	**58800**
		Evaluation	0	14700	14700	14700	14700	**58800**
		Entry point activities	235200	0	0	0	0	**235200**
		Institution and capacity building	0	294000	0	0	0	**294000**
		Detailed project report	58800	0	0	0	0	**58800**
		Watershed development works	0	470400	940800	999600	882000	**3292800**
		Livelihood activities for the asset less persons	0	0	176400	294000	58800	**529200**
		Production system and micro enterprises	0	0	176400	235200	176400	**588000**
		Consolidation phase	0	0	0	0	176400	**176400**
		Total	**352800**	**837900**	**1484700**	**1778700**	**1425900**	**5880000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and
Funds in Rs.

Table 9. PHASING YEAR WISE (Name of the Micro Watershed: Subana)
(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
410	4920000	Administrative costs	49200	49200	147600	147600	98400	**492000**
		Monitoring	0	0	0	49200	0	**49200**
		Evaluation	0	12300	12300	12300	12300	**49200**
		Entry point activities	196800	0	0	0	0	**196800**
		Institution and capacity building	0	246000	0	0	0	**246000**
		Detailed project report	49200	0	0	0	0	**49200**
		Watershed development works	0	393600	787200	836400	738000	**2755200**
		Livelihood activities for the asset less persons	0	0	147600	246000	49200	**442800**
		Production system and micro enterprises	0	0	147600	196800	147600	**492000**
		Consolidation phase	0	0	0	0	147600	**147600**
		Total	**295200**	**701100**	**1242300**	**1488300**	**1193100**	**4920000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and
Funds in Rs.

Table 10. PHASING YEAR WISE (Name of the Micro Watershed: Bhatera)
(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
410	4920000	Administrative costs	49200	49200	147600	147600	98400	**492000**
		Monitoring	0	0	0	49200	0	**49200**
		Evaluation	0	12300	12300	12300	12300	**49200**
		Entry point activities	196800	0	0	0	0	**196800**
		Institution and capacity building	0	246000	0	0	0	**246000**
		Detailed project report	49200	0	0	0	0	**49200**
		Watershed development works	0	393600	787200	836400	738000	**2755200**
		Livelihood activities for the asset less persons	0	0	147600	246000	49200	**442800**
		Production system and micro enterprises	0	0	147600	196800	147600	**492000**
		Consolidation phase	0	0	0	0	147600	**147600**
		Total	**295200**	**701100**	**1242300**	**1488300**	**1193100**	**4920000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and
Funds in Rs.

Table 11. PHASING YEAR WISE (Name of the Micro Watershed: Kasni and Samaspur Majra)
(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
495	5940000	Administrative costs	59400	59400	178200	178200	118800	**594000**
		Monitoring	0	0	0	59400	0	**59400**
		Evaluation	0	14850	14850	14850	14850	**59400**
		Entry point activities	237600	0	0	0	0	**237600**
		Institution and capacity building	0	297000	0	0	0	**297000**
		Detailed project report	59400	0	0	0	0	**59400**
		Watershed development works	0	475200	950400	1009800	891000	**3326400**
		Livelihood activities for the asset less persons	0	0	178200	297000	59400	**534600**
		Production system and micro enterprises	0	0	178200	237600	178200	**594000**
		Consolidation phase	0	0	0	0	178200	**178200**
		Total	**356400**	**846450**	**1499850**	**1796850**	**1440450**	**5940000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

MICRO WATERSHED WISE/COMPONENT WISE PHASING
YEAR WISE BUDGET PHASING UNDER IWMP

Area in Hectares and
Funds in Rs.

Table 12. PHASING YEAR WISE (Name of the Micro Watershed: Dhakla)
(BUDGET AT A GLANCE)

Effective Area	Funds Available	Name of activity	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total
475	5700000	Administrative costs	57000	57000	171000	171000	114000	**570000**
		Monitoring	0	0	0	57000	0	**57000**
		Evaluation	0	14250	14250	14250	14250	**57000**
		Entry point activities	228000	0	0	0	0	**228000**
		Institution and capacity building	0	285000	0	0	0	**285000**
		Detailed project report	57000	0	0	0	0	**57000**
		Watershed development works	0	456000	912000	969000	855000	**3192000**
		Livelihood activities for the asset less persons	0	0	171000	285000	57000	**513000**
		Production system and micro enterprises	0	0	171000	228000	171000	**570000**
		Consolidation phase	0	0	0	0	171000	**171000**
		Total	**342000**	**812250**	**1439250**	**1724250**	**1382250**	**5700000**
		Percentage of total cost	**6%**	**14.25%**	**25.25%**	**30.25%**	**24.25%**	**100%**

CHAPTER – 6

PREPARATORY PHASES

During the first year, all activities involved by adopting participatory approach and empowerment of local institutions (WC, SHG, and UG). WAPCOS team assumed the role of facilitator during this phase. In this phase, the main activities are as follows:

6.1 AWARENESS GENERATION AND MOTIVATION FOR PARTICIPATION

Fortunately, due to the implementation of earlier watershed management projects and operation of various ongoing soil and water conservation schemes, there has been regular interaction of the departmental staff with the community. Because of positive result of earlier projects, people are responsive and are looking forward for projects intervention. The need for the soil and water conservation works have emerged due to persistent draught, which the area is facing. However, production system need lot of improvement and hence the need of awareness generation and motivation for collective efforts to face the malady of recurrent floods and draught.

6.1.1 Collection of Base Line Data and Hydrological Data

As explained earlier, baseline data from all possible sources is collected for the purpose of not only future impact assessment but also to design project intervention. Most of this was done at the PPR and DPR stages, which forms integral part of the preparatory phase. In addition, data on rain fall amount and distribution, weather conditions and frequency of floods and drought was compiled at DPR stage.

6.1.2 Formation of Village Level Institutions

It has been decided by the state that project activities shall be implemented throughout the watershed committees (WCs). In collaboration with the department, the village level WCs were formed by holding well-attended meeting in which all settlement and section of the society were represented. Due representation was given to women, landless and BPL families as per norms issued by DoLR.

The self- Help Groups were formed during earlier projects but most of them are inactive and non – functional. Those groups will be revived and new ones were formed depending upon willingness of the interest groups. The type of activities these groups want pursue and their capacity building requirements were noted.

6.1.3 Preparation of DPR

PRA exercise and comprehensive data base have been carried out for DPR preparation. Meetings were held at district, micro-watershed wise and village wise with the lined departments and members of Gram Sabha on this aspect**.** The Draft Project Report was prepared on the basic information generated from primary and secondary sources. This also includes the outcome of participatory rural appraisal and outcome of transect walk and stakeholders' discussions. A list of scope of works that finally emerged was prepared. Based on the technical survey, detailed cost estimates were prepared for components including resource management, entry point activities and production system. A broad frame work for capacity building at all levels as per the guidelines of DoLR was prepared. The livelihood opportunities which emerged from local product and market facility were analyzed and outlines of the same were included. Since the financial provisions were decided according to the area proposed to be covered, these provisions were distributed across project activities. The project activities are sequenced into three phase's namely preparatory phase, work phase, consolidation and withdrawal phase. So, the activities were segregated in the sequence and explained in detail. Finally the details about budget and its spilt up into annual action plan were also attempted. Various maps using

GIS were created likes Base map, Present Land Use, Geo-hydrological, Micro Watershed, Drainage, Contours, Slope, Soil Classification, Soil fertility, Land Capability Classification, Ground Water Depth and Quality, Proposed and existing Activities of works. All the works proposed in the DPR are location specific and are as per the local demand and socio- economic conditions of the watersheds.

Strength, Weakness, Opportunities, Threat (SWOT) analysis of IWMP

A critical analysis of main strength of the proposed project, evident weaknesses, opportunities available for successful implementation and scope of achieving set objectives was made. Attention is also paid to possible threat against which sufficient inbuilt safeguards are provided. Such an analysis was done for the project in hand and summaries of observations were made and are mentioned below in all six watersheds in Jhajjar district.

Strengths

- Moderate rain fall
- Strong linkage with national and state level institutes and KGK for capacity building and technical guidance.
- Most families are engaged in animal husbandry activities.
- Availability of drinking water.
- Good response to earlier watershed management programmes.
- Local residents are active in micro enterprises.

Weaknesses

- Erratic rainfall
- Lack of good quality fodder.
- Lack of advanced cattle breed.

- Low level of milk production.
- Lack of knowledge base regarding scientific cattle management.
- Prevalence of soil erosion
- No organized micro enterprises activities.
- Lack of technical skills.

Opportunities

- Rain Water harvesting/recharging for production.
- Promotion of organic farming.
- Promotion of horticultural activities (dry land plants).
- Provide training on dairy farming and other income generating activities.
- Promotion of nursery raising and pasture development.
- There would be horizontal integration and convergence of development programmes being organized and run by govt.

Threats

There are few negative issues that may have adverse effect

- Unreliable rainfall.
- Absence of assured irrigation.
- Lack of cooperation and contribution from local residents.
- Low literacy rate in the project area.
- Rapid climate change affecting crops.
- Lack of awareness of Dairy farming as a commercial activity.
- The area is underlain by marginal to saline ground water.
- Frequent droughts.

CAPACITY BUILDING- 5%
Rs. 29, 34, 000/-

6.2 Capacity Building

1. Introduction

Watershed development is conceived as a strategy for protecting livelihoods of people inhabiting fragile ecosystems, which over period of time have become subject to multidimensional land degradation. Main stress has been to ensure availability of water for drinking and irrigation to support agro-horti-forestry operation vis-à-vis raise income level and provide adequate employment opportunities for communities living in such areas of concerns. As an intervention Integrated Wasteland Development is nearly 20 years old. The initiatives have been subject to periodic reviews by expert committees with a broader view to improve upon its strategy and components as well as match with the growing socio-ecological requirements

Para 9.VIII of common guidelines necessitate capacity building and training of all functionaries and stakeholders involved watershed programme on a war footing with definite action plan, requisite professionalism and all round competence.

2. Vision

A sincere effort to provide required professionalism and competence to the stakeholders associated with planning and implementation of IWMP in the state. This would include organisation development, human resource development, cooperation and network development and institutional development, all seen as a continuous process enabling functionaries to enhance their knowledge and skills and to develop the required orientation and perspectives thereby becoming more effective in discharging their roles and responsibilities.

3. Need

The term Capacity Development is understood as the development of peoples, organizations and societies' capability to manage resources effectively and efficiently in order to realize their own goals on a sustainable basis. In this context, four dimensions have to be distinguished:

- The development of the human resource or personnel development.
- The strengthening of the effectiveness and efficiency of organization or organizational development.
- The strengthening of cooperation between organizations and network development.
- The promotion of institutional frameworks for development.

Further, already 47 projects sanctioned in 2011-2012 in the state covering around 248 micro watersheds measuring 179531 hectares of area. The implementation of these new projects under the umbrella of common guidelines is reported to be in the initial stage under preparatory phase. The establishment of desired institutional setup at all levels, required level of awareness for ensuring effectiveness of all institutions and community participation is therefore necessitated for conclusive participation by all.

This also necessitates a comprehensive package to provide appropriate knowledge for speedy implementation of the projects in the state particularly in the districts.

4. Rationale

Para 81 of common guidelines for watershed development lays special emphasis on the following key elements of Capacity building strategy.

- Dedicated & decentralized institutional support & delivery mechanism
- Annual Action Plan for Capacity Building

- Pool of resource persons
- Well prepared training modules and reading materials
- Mechanism for effective monitoring and follow-up.

Keeping in firsthand experience of the state in launching 47 projects under IWMP and current state of planning and implementation under preparatory phase the current action plan is primarily prepared to build the capacity of different principal stakeholders of projects to speed up further implementation and also lay a strong foundation for subsequent phases.

5. Objectives

The main objectives of the current action plan for ongoing 13 projects are outlined as follows:-

- Create common understanding on different features and provisions of common guidelines as well as instructions directions issued from time to time by Central and State Governmental agencies.
- Develop proper conceptual understanding about integrated participatory watershed management including other issues such as equity, environmental and social sustainability among all implementing agencies at project and village levels, PRIs and local communities (**KNOWLEDGE**).
- Build necessary and required skills and managerial competence of all stakeholders about planning, implementation and management of various project activities using participatory approach (**SKILLS**).
- Help institutional growth of watershed committees at GP level.
- Strengthening community participation, ensuring positive involvement of communities and improvement of socio economic conditions in watershed areas (**ATTITUDES**).

Table 1. Statement of Targets under Proposed Training Action Plan at Micro Watershed Level to be conducted by WDT members of Jhajjar District

Sl. No.	Title of Training Programme and Duration	Level of Participants	Total persons	Trainees Per Programme	Number of Programmes
01	District Level Sensitization Workshop for Watershed Committees. **One Day**				
	Jhajjar	Members of Watershed Committees @ 10 per committee would also include accompanying WDT Members.	330	150-200	2
02	Block Level Functional Programmes for Secretaries of Watershed Committees. **Two Days**				
	Jhajjar	Secretaries of Village Watershed Committees	33	15-45	1
03	Project Level Sensitization Camps for WC **One Days**				
	Jhajjar	Members of Watershed Committees @ 10 Persons (Tentative) per WC	330	50	7
04	Village Level Awareness Camps on IWMP at Micro Watershed Level for User Groups **One Day**				
	Jhajjar	Approximately 50 prospective user groups per micro watershed.	1650	50	33
05	Block Level Functional Programmes for SHGs [Leader, Secretary and Treasurer] under IWMP **One Day**				
	Jhajjar	Three persons (Leader, Secretary and Treasurer) per Self Help Group @ around one SHG per village.	99	50	2

Note: Training programmes under Sl. No. 01 are proposed to be conducted by HIRD in collaboration with SLNA and WCDCs.

6. Training Methods

A group of selected Watershed Development Team members would be trained on various methods to ensure that they are able to conduct the proposed interventions effectively with the help of some of the following methods.

- Interactive learning.

- Experience Sharing.
- Experimental Learning.
- Presentation of case studies.
- Classroom deliberations.
- Group [structured] exercises and discussions.

7. Tools

- Projectors
- Flip Charts
- Electronic films
- Print Material
- Other IEC material.

8. Resource Persons

8.1. Internal

Around two persons per WDT identified from the initial training activities by HIRD, Nilokheri would be trained on various aspects for designing and conducting the training programmes. It is expected that each WDT members would be required to function as a internal resource person for the proposed training programmes. Technical experts from each WCDC and PIA would also function as facilitators in the proposed training activities.

8.2. External

Further, in order to make the proposed interventions meaningful for achieving the broader objectives efforts would be made to liaison with various experts from district level line departments, agencies and state level institutions including HIRD as per the need of the programme.

9. Fund Requirement

The **approved revised norms for training for PRIs and RD functionaries" by MoRD, GoI in 2010** have been strictly used [for fixed and variable costs].

Table 2. Statement showing funds Requirement for training on IWMP in Haryana (Preparatory Phase – District Level)

Sr. No.	Training Programmes for SLNA, WDT, PIA , Field Functionary , WDC member's , SHG & UG organize by HIRD	Total Funds
1	District Level Sensitization Workshop(s) for Watershed Committees	72967
2	Block Level Functional Programmes for Secretaries of Watershed Committees. Two Days	13536
3	Village Level Sensitization Camps for WC One Days	69282
4	Village Level Awareness Camps on IWMP at Micro Watershed Level for Prospective User Groups One Day	89128
5	Block Level Functional Programmes for SHGs [Leader, Secretary and Treasurer] under IWMP One Day	27739
	Total	**272652**

Table 3. Micro Watershed Wise Exposure cum training Visit for SLNA, WDT, PIA , Field Functionary , WDC, SHG & UG Members of IWMP III (Jhajjar)

S. No.	Target Group	Training Topics	No. of days	Budget per camp	No. of Camps	No. of Participants per camp	Cost for all participants per day	Cost per participant/ per day	Cost per person	Total Budget
1	Self Help Groups- 2 SHGs- micro watershed level	Orientation on IWMP, SHGs cum Exposure Visit	2	22000	5	11	55000	1000	2000	110000

S. No.	Target Group	Training Topics	No. of days	Budget per camp	No. of Camps	No. of Participants per camp	Cost for all participants per day	Cost per participant/ per day	Cost per person	Total Budget
2	User groups from each micro watershed	NRM, Post Project Management etc. – Exposure Visit	2	22000	5	11	55000	1000	2000	110000
3	Sub watershed Level- WDT Members	Part II-Module I to V- Exposure Visit Outside State- Conceptual, Technical, Social, Management of Finance, Monitoring and Evaluation.	4	66000	5	11	82500	1500	6000	330000
4	Sub watershed Level- PIA Members	Exposure Visit- Within Fundamentals of Watershed, Finance Management, Final Report on WDP etc	2	33000	5	11	82500	1500	3000	165000
5	District Level-WDC	Exposure visit to successful	2	33000	5	11	82500	1500	3000	165000

S. No.	Target Group	Training Topics	No. of days	Budget per camp	No. of Camps	No. of Participants per camp	Cost for all participants per day	Cost per participant/ per day	Cost per person	Total Budget
		watershed/ University.								
6	District Level-Line Deptt., WDC	Exposure visit to successful watersheds within state.	2	33000	5	11	82500	1500	3000	165000
7	SLNA and District Level Controlling Officers	Exposure visit to successful watersheds outside state	4	66000	5	11	82500	1500	6000	330000
Total										**1375000**

Table 4. Farmer's / Beneficiaries training camps with Extension Programmes of IWMP III (Jhajjar)

S. No.	District	No. Micro watersheds	No. of Camps/ Year/ Micro watershed	Total No. of camps per Year	Total No. of camps for 5 Year's	Amount of per Camp	Amount per Micro watershed	Total Budget
1.	Farmer Training Camp in each season	11	1	11	55	12,000	60000	660000

S. No.	District	No. Micro watersheds	No. of Camps/ Year/ Micro watershed	Total No. of camps per Year	Total No. of camps for 5 Year's	Amount of per Camp	Amount per Micro watershed	Total Budget
2.	Propaganda & Documentation (Puppet show, documentary movies show, video-graphy, Photography, wall Painting, Display Board, pamphlets, leaf lets. Etc)	11	2	22	110	5000	25000	550000
3	Contingency charges							76348
	Total							**1286348**

i) **Training Programmes for SLNA, WDT, PIA , Field Functionary , WDC member's , SHG & UG organize by HIRD = Rs. 272652/-**

ii) **Micro Watershed Wise Exposure cum training Visit For SLNA, WDT, PIA , Field Functionary , WDC, SHG & UG Members**
= Rs. 1375000/-

iii) **Farmer's / Beneficiaries training camps with Extension Program's = Rs. 1286348/-**

Grand Total = Rs. 2934000/-

6.2.1. EXPECTED OUTCOME OF CAPACITY BUILDING

- All principal stakeholders would be covered under proposed training interventions by March, 2013.
- The knowledge level of different stakeholders on various provisions of Common Guidelines will increase to a significant level.

- The skill level of the principal stakeholders will be improved in managing watershed projects in consonance with the provisions of common guidelines and state government instructions.
- The programmes will help in ensuring that all stakeholders/agencies/institutions work with positive attitudes in order to utilize the benefit of the projects in fulfilling the objectives set forth.
- Programmes will create a sense of responsible partnership amongst various stakeholders.
- The programmes will also help in further identifying areas for future interventions.
- Improved participation of different stakeholders leading to speedy implementation of watershed development work phase.
- Experiences would help in consolidating other gaps for better planning and management of Capacity Building and Training interventions under new projects in future.

6.3 Entry Point Activities 4%

EPA activities are taken up under the watershed to build rapport with village community at the beginning of the project, generally certain important works which are in urgent demand of the local community are taken up. A group discussion was conducted in the Gram Sabha meeting/watershed committee regarding EPA activities. It was conveyed to the Gram Sabha that an amount of **Rs. 29, 53,920/-** was provided for EPA. The provision of IEC material for community will be met under EPA. The stake holders discussed the various activities which they felt is important but after the discussion the following activities were finalized. The convergence with the other project can also be undertaken.

Table 5. Entry Point Activities in Jhajjar Watershed (IWMP III)

Sr. No.	Block	Name of Project	No. of EPAs Identified	No. of EPAs Completed	Name/Nature of EPA	Location	Expenditure
1.	Jhajjar and Sahla was	Jhajjar Watershed (IWMP III)	16	15	Cow Ghat	Kheri Taluka Patoda	2,59,360/-
					2 no. Water tanki+ 2no. RO+ One water cooler	Kahari	1,79,721/-
					Dirty Water Nala	Amadalpur	2,20,700/-
					2 no. Water tanki+ 2no. RO+ One water cooler	Bhathera	1,83,976//-
					Culvert	Asadpur Khera	1,52,943/-
					Pond work (Re-silting)	Machhrauli	1,99,362/-
					Diversion channel for waste water	Koka	1,36,850/-
					2 water tanki + one RO + one water cooler	Samaspur Majra	1,61,950/-
					R/wall	Dadanpur	1,12,200/-
					Diversion channel for waste water	Subana	1,84,044/-
					Cow Ghat	Dhakla	2,23,710/-
					2 no. Water tanki+ One water cooler	Kasni	1,22,405/-
						Total	**21,37,221/-**

CHAPTER- 7

WORK PHASE

7.1 WATERSHED DEVELOPMENT WORKS - 56%

The Works under the project have been identified after the detailed survey of the Project Area and discussions held with watershed development team members along with officers from other field like Agriculture, Horticulture and Animal Husbandry. Participatory approach has been adopted to identify the activities under the project. The detailed discussions were held with watershed committees and works identified along with villagers after making visits to identified sites. The works mainly relate to soil and water conservation activities like Water conveyance system, Dug Out Pond (New/Renovation), Ramp/Ghat Inlet and Outlet, Roof top rain water recharge structures etc. The proposed project proposals were presented in the Gram Sabha meeting as per the schedule and were approved with certain changes. The works thus identified are given in the attached sheets along with estimates – micro watershed wise.

Proper publicity about the proposed project proposal through brouchure , pumplet, wall writing at common place must be carried out in the project areas.

Natural Resource Management

The project area is having small or large old ponds which have been silted up and needs strengthening. The land holding is small and any loss of land nearby area would be loss to the farmer. Under the IWDP/ Haryali some works like construction/renovation of farm ponds has been undertaken but still at few places water channel, inlet of the ponds and outlet needs to be constructed. So there repair and renovation is proposed. During the discussion it was felt to be genuine demand for repair, renovation and capacity enhancement of ponds in the area.

Proposed System: Run-off from upper area shall be reduced by a-forestation and other soil conservation measures which would also recharge the aquifer. As per need, retaining walls are proposed at strategic locations to protect the farm lands and bank of ponds.

Proposed Activity: Renovation and construction of new ponds is proposed. The provision for construction of inlet, outlet, ramp and retaining walls are the basic need by project stakeholders which has been provided. In some villages, the construction of new ponds is proposed, subject to availability of funds. In summer months, it is widely held that buffaloes must spend 3 to 4 hours in pond for cooling which save the animal from heat stress. Hence, there was much demand of ponds renovation and repairs. Ponds as such are the best source of rainwater conservation and ground water recharge.

Gram Panchayats spend meager money on repair and renovation under different schemes but due to paucity of funds, works are taken up in piece meal and main work of retaining wall is ignored. The stakeholders gave high priority for the construction of retaining walls as lot of water was leaking from sides and cutting of banks by waves and animal intervention to reduce capacity of pond. In most villages, the first priority of the entire community is the construction of retaining walls of the ponds as these are considered sacred due to the presence of historic village temples nearby. Some of the works had been covered under entry point activities. It is also stressed to use the labor component from MGNREGA and material from provision from the IWMP so that maximum amount of rainwater is harvested.

This phase has been started after the completion of the preparatory phase is by and large complete. It is considered as the heart of the program in which the DPR proposals shall be implemented in participatory mode. In this watershed management program, it was planned to rehabilitate the degraded watersheds by the control of runoff and soil loss by biological and masonry works for conservation measures. In this water stressed project area, rainwater harvesting to reduce soil erosion, recharge ground water, improve moisture regime and use of harvesting water for human and livestock

use. This was coupled with land development, production improvement, and promotion of subsidiary occupations for improved livelihoods. Many village ponds are silted, several are filled with filth and sewage water and giving foul smell. Repair renovation and retaining walls of village ponds has emerged as an important activity. The scope of integrated watershed regeneration/rehabilitation works which emerged from the PRA is now presented.

Sample estimates are as follows:

7.2.1 Activities under NRM (56%) Micro Watershed Wise (IWMP III Jhajjar) is given below and the proposed action plan/treatment plan map shown in **Annexure-X.**

Name of the Project: IWMP-III		Name of the watershed: Jhajjar (IWMP-III)					Name of the village: Dhakla	
Sr. no	Nature of work	Location	Catchment area, storage capacity, Submergence area and command area	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
					Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall	Nava pond N 28°28'846" E076°33'444" Ghaodi pond N28°29'328" E076°33'426"		M	200	9000	18.00	To check soil erosion and protection of banks.
2	Water conveyance system (UGPL)	Kasni minor se gusana pond and Ghaodi pond N 28°28'846" E076°33'444"		M	1500	500	7.5	To enhance efficiency of irrigation water and produce water management aspect
3	Roof Rain water Harvesting Structure	Govt. Sr. Sec. School N 28°28'945" E076°33'434"	0.04 ha 17.25 cum	No	1	2.50	2.50	Harvesting of rain water to make its use for domestic purpose as well as irrigation is kitchen plantation etc and also for recharging purpose.
4	Ramp inlet-outlet	Gusana pond N28°28'839" E076°33'326" Peer wala pond N28°29'179" E076°33'407" Nava pond N 28°28'846" E076°33'444" Ghaodi pond N28°29'328" E076°33'426"		No	4	2.50	10.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
Total							38.00	
Available							31.92	

Convergence	6.08	

Name of the Project: IWMP-III			Name of the watershed: Jhajjar (IWMP-III)				Name of the village: Subana	
Sr. no	Nature of work	Location	Catchment area, storage capacity, Submergence area and command area	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
					Phy.	Unit cost (Rs. In Lakh)		
1	Open drainage channel	Dhakla minor se baba Salig gram pond N28°28'204" E076°34'615" Village firani ke sath N28°27'928 E076°33'948"		M	2200	1000 per m	22.00	Drain out waste/stagnant to check water logging and for improvement in sanitation and to avoid mud formation in street and paths and for irrigation purpose also.
2	Culvert	Dhakla minor near Bithala village N28°28'073" E076°34'033"		No	1	2.50	2.50	To Conservation of the Natural Recourses and provide proper flow of water to facilitate transportation.
3	Plantation	Park, Stadium and Samshan ghat		Ha	3	1.00	3.00	To increases biomass covers and provides proper flow of water to facilitate transportation and conservation of natural resources.
4	Roof rain water harvesting structure	Govt. Sr. Sec. School N28°28'129" E076°34'265"	0.04 ha 17.25 cum	No	1	3.00	3.00	Harvesting of rain water to make its use for domestic purpose as well as irrigation is kitchen plantation etc and also for recharging purpose.
5	Ramp inlet-outlet	Baba Salig gram pond N28°27'802" E076°33'857"		No	1	2.5	2.50	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
6	Other soil and	From village to baa		Ha	3	2.00	6.00	Conservation of natural

	moisture conservation works	wale raste tak N28°28’062” E076°34’367”						resources
Total							39.00	
Available							27.55	
Convergence							11.45	

Name of the Project: IWMP-III		Name of the watershed: Jhajjar (IWMP-III)					Name of the village: Asedpur Khera	
Sr. No	Nature of work	Location	Catchment area, storage capacity, Submergence area and command area	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
					Phy.	Unit cost (Rs. In Lakh)		
1	Deepening of pond	Nava pond N28°26'941" E076°38'051" Bani wala pond N28°26'542" E076°38'169"	33 ha 14200 cum 9500 sqm 21 ha	No	2	5.00	10.00	To Enhance Pondage capacity.
2	Water conveyance system PWC	Water works se suraj kund tak N28°26'941" E076°38'051"		M	600	1000 per m	6.00	For pucca water channel for irrigation purpose
3	Retaining wall	Suraj kund pond N28°26'918" E076°38'443"		M	100	9000	9.00	To check soil erosion and protection of banks
4	Uprooting + leveling *+Bunding	Village Common land N28°26'791" E076°38'636"		ha	3	0.75	2.25	Development of wasteland to increase area under cultivation to check soil erosion as well as to conservation soil moister
5	Plantation	Park near ahri road, Stadium near water works		Ha	2	1.00	2.00	To increases biomass covers and provide proper flow of water to facilitate transportation and conservation of natural resources.
6	Ramp inlet-outlet	Suraj kund pond N28°27'127" E076°38'081"		No	1	2.50	2.50	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.

Total	31.75	
Available	30.24	
Convergence	1.51	

***Before executing detail topographic survey and assessment must be carried out before implementation.**

Name of the Project: IWMP-III			Name of the watershed: Jhajjar (IWMP-III)				Name of the village: Bhatera	
Sr. No	Nature of work	Location	Catchment area, storage capacity, Submergence area and command area	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
					Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall	Ghatoli Shiv mandir wala pond N28°29'043" E076°40'819"		M	100	9000	9.00	To check soil erosion and protection of banks
2	Ramp inlet-outlet	Ghatoli Shiv mandir wala pond N28°29'043" E076°40'819" Bhatera Shiv mandir pond N28°28'151" E076°42'271"		No	3	2.50	7.50	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
3	Water conveyance system (UGPL)	Shiv mandir se lekar Bhatera Shiv mandir pond N28°29'022" E076°40'863"		m	1000	500	5.00	To enhance efficiency of irrigation water and produce water management aspect
4	Plantation	Park, Stadium Near Main Bhatera Road		Ha	2	1.00	2.00	To increases biomass covers and provide proper flow of water to facilitate transportation and conservation of natural resources.
5	Roof rain water harvesting structure	Govt. Primary School N28°28'677" E076°41'600"	0.08 ha 34.5 cum	No	2	2.50	5.00	Harvesting of rain water to make its use for domestic purpose as well as irrigation is kitchen plantation etc and

		Govt. High School N28°28’063” E076°42’368”						also for recharging purpose.
Total							28.50	
Available							27.55	
Convergence							0.95	

Name of the Project: IWMP-III		Name of the watershed: Jhajjar (IWMP-III)					Name of the village: Dadanpur	
Sr. No	Nature of work	Location	Catchment area, storage capacity, Submergence area and command area	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
					Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall	Nava pond N 28°30'181" E076°39'509" Narsing Wala pond N28°25'568" E076°18'151"		M	200	9000 per m	18.00	To check soil erosion and protection of banks
2	Open drainage channel	Dadanpur minor N28°30'385" E076°39'542"		M	500	1000 per m	5.00	Drain out waste/stagnant to check water logging and for improvement in sanitation and to avoid mud formation in street and paths and for irrigation purpose also.
3	Plantation	Park near bye pass stadium and Shamshan ghat		Ha	3	0.50	1.50	To increases biomass covers and provide proper flow of water to facilitate transportation and conservation of natural resources.
4	Uprooting + leveling *+field Bunding	Village Common land N28°30'46.2" E076°39'46.6"		Ha	3	0.75	2.25	Development of wasteland to increase area under cultivation to check soil erosion as well as to conservation soil moister
5	Ramp inlet-outlet	Nava pond N 28°30'181" E076°39'509" Narsing Wala pond N28°25'568" E076°18'151"		No	2	2.50	5.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
6	Roof rain water	Govt. Sr. Sec.	0.04 ha	No	1	3	3.00	Harvesting of rain water to

	harvesting structure	School N28°30'308" E076°39'718"	17.25 cum					make its use for domestic purpose as well as irrigation is kitchen plantation etc and also for recharging purpose.
Total							34.75	
Available							32.93	
Convergence							1.82	

***Before executing detail topographic survey and assessment must be carried out before implementation.**

Name of the Project: IWMP-III		Name of the watershed: Jhajjar (IWMP-III)				Name of the village: Kheri Taluka Patoda	
Sr. No	Nature of work	Location	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
				Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall	Water tank wale pond N28°27'827" E076°40'384"	M	110	9000 Per m	9.90	To check soil erosion and protection of banks
2	Ramp inlet- outlet	Water tank wale pond N28°23'692" E076°40'493"	No	2	3.00	6.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
3	Open drainage channel	Firani se PWD Road tak N28°23'701" E076°40'311"	M	800	1000 Rs. Per m	8.00	Drain out waste/stagnant to check water logging and for improvement in sanitation and to avoid mud formation in street and paths and for irrigation purpose also.
4	Uprooting +Land leveling* + Bunding	Village common land N28°26'996" E076°39'815"	Ha	2	0.75	1.50	Development of wasteland to increase area under cultivation to check soil erosion as well as to conservation soil moister
5	Plantation	Park near aagan wadi centre, stadium and Shamshan ghat	Ha	4	0.50	2.00	To increases biomass covers and provide proper flow of water to facilitate transportation and conservation of natural resources.
6	Other soil and moisture conservation works	Tej pal ke khet se Bhuria ke khet tak N28°26'002" E076°41'423"	Ha	4	2	8.00	Conservation of natural resources
Total						35.40	
Available						30.24	
Convergence						5.16	

***Before executing detail topographic survey and assessment must be carried out before implementation.**

Name of the Project: IWMP-III		Name of the watershed: Jhajjar (IWMP-III)				Name of the village: Kahari	
Sr. no	Nature of work	Location	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
				Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall	Peer wale pond N28°27'172" E076°41'243" Khudana pond N28°27'653" E076°40'642"	M	125	9000 per m	11.25	To check soil erosion and protection of banks
2	Ramp inlet-outlet	Katodha pond N28°27'259" E076°40'482" Peer wale pond N28°27'172" E076°41'243"	No	2	2.50	5.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
3	Open drainage channel	Firani se lekar Katodha pond tak N28°27'259" E076°40'482"	M	700	1000 Rs. Per m	7.00	Drain out waste/stagnant to check water logging and for improvement in sanitation and to avoid mud formation in street and paths and for irrigation purpose also.
4	Roof rain water harvesting structure	Govt. primary school N28°27'733" E076°40'819"	No	1	3	3.00	Harvesting of rain water to make its use for domestic purpose as well as irrigation is kitchen plantation etc and also for recharging purpose.
Total						26.25	
Available						27.22	
Convergence						Nil	

Name of the Project: IWMP-III		Name of the watershed: Jhajjar (IWMP-III)		Name of the village Amadalpur				
Sr. No	Nature of work	Location	Catchment area, storage capacity, Submergence area and command area	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
					Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall in pond	Gavo wala pond N28°27'066" E076°40'18" Teejo wala pond N28°26'460' E076°39'527"		M	100	9000 per m	9.00	To check soil erosion and protection of banks
2	Ramp inlet-outlet	Banni wala pond N28°27'02" E076°40'09" Gavo wala pond N28°27'066" E076°40'18"		No	2	3	6.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
3	Plantation	Park, Stadium, Shamshan Ghat		Ha	3	0.50	1.50	To increases biomass covers and provide proper flow of water to facilitate transportation and conservation of natural resources.
4	Water conveyance system (UGPL)	Water works se lekar school tak N28°26'491" E076°26'558"		M	400	500	2.00	To enhance efficiency of irrigation water and produce water management aspect
5	Deepening of pond	Baniya wala pond N28°27'050" E076°40'253"	22 ha 9500 cum 6300 sqm 13 ha	No	1	5	5.00	To Enhance Pondage capacity.
6	Open drainage	Firani se lekar		M	700	1000	7.00	Drain out waste/stagnant to

	channel	baniya wala pond tak N28°28'163" E076°39'318"				Rs. Per m		check water logging and for improvement in sanitation and to avoid mud formation in street and paths and for irrigation purpose also.
7	Roof rain water harvesting structure	Govt. Sr. Sec. School N28°27'174" E076°40'110"	0.04 ha 17.25 cum	No	1	3	3.00	Harvesting of rain water to make its use for domestic purpose as well as irrigation is kitchen plantation etc and also for recharging purpose.
Total							33.50	
Available							32.93	
Convergence							0.57	

Name of the Project: IWMP-III	Name of the watershed: Jhajjar (IWMP-III)	Name of the village: Koka					
Sr. no	Nature of work	Location	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
				Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall	School wala pond N28°26'271" E076°38'174" Kunsi wala pond N28°26'243" E076°38'218"	M	130	9000 per m	11.70	To check soil erosion and protection of banks
2	Ramp Inlet-outlet	School wala pond N28°26'271" E076°38'174" Kunsi wala pond N28°26'243" E076°38'218"	No	2	3	6.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
3	Plantation	Park near Govt. School, Stadium, Shamshan Ghat	ha	3	0.50	1.50	To increases biomass covers and provide proper flow of water to facilitate transportation and conservation of natural resources.
4	Other soil and moisture conservation works	Firani se harijan panghat ki kui tak N28°25'941" E076°38'329"	ha	2	2	4.00	Conservation of natural resources
5	Open drainage channel	Firni se bhaiya wala pond tak N28°26'353" E076°39'268"	M	500	1000 Rs per m	5.00	Drain out waste/stagnant to check water logging and for improvement in sanitation and to avoid mud formation in street and paths and for irrigation purpose also.
Total						28.20	
Available						26.88	
Convergence						1.32	

Name of the Project: IWMP-III Name of the watershed: Jhajjar (IWMP-III) Name of the village: Samaspur Majra+Kasni								
S. No.	Nature of work	Location	Catchment area, storage capacity, Submergence area and command area	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
					Phy.	Unit cost (Rs. In Lakh)		
1	Deepening of pond	Dakroda pond N28°30'479" E076°34'905" Baniya wala pond N28°28'923" E076°35'544"	38 ha 16400 cum 10900 sqm 24 ha	No	2	5	10.00	To Enhance Pondage capacity.
2	Retaining wall	Ramsar pond N28°30'466" E076°34'72" Ghamndi wala pond N28°28'009" E076°35'287"		M	150	9000 per m	13.50	To check soil erosion and protection of banks
3	Ramp inlet-Outlet	Ramsar pond N28°30'466" E076°34'72" Ghamndi wala pond N28°29'037" E076°35'529"		No	2	3.00	6.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
4	Open drainage channel	Gavo se lekar baniya wale pond tak N28°28'448" E076°35'632"		M	600	1000 Rs. Per m	6.00	Drain out waste/stagnant to check water logging and for improvement in sanitation and to avoid mud formation in street and paths and for irrigation purpose also.

5	Plantation	Park near Govt School, Stadium, Shamshanghat.		Ha	4	0.50	2.00	To increase biomass cover and provide proper flow of water to facilitate transportation and conservation of natural resources.
Total							37.50	
Available							33.26	
Convergence							4.24	

Name of the Project: IWMP-III	Name of the watershed: Jhajjar (IWMP-III)					Name of the village: Machrolli	
	Nature of work	Location	Unit	No. of Work		Estimate Cost Rs. In Lakh	Objectives
				Phy.	Unit cost (Rs. In Lakh)		
1	Retaining wall	Peer wala pond N28°28'847" E076°39'192" Gavo wala pond N28°28'446" E076°38'864" Syamji wala pond N28°28'236" E076°39'195"	M	200	9000 per m	18.00	To check soil erosion and protection of banks
2	Ramp inlet-Outlet	Peer wala pond N28°28'847" E076°39'192" Gavo wala pond N28°28'446" E076°38'864" Syamji wala pond N28°28'236" E076°39'195"	No	3	3	9.00	To check soil erosion and protection of banks as well as safe passage for cattle which is also helpful in protect of the bank erosion.
3	Roof rain water harvesting structure	Govt. Sr. Sec. School N28°28'563 E076°39'152"	No	2	3	6.00	Harvesting of rain water to make its use for domestic purpose as well as irrigation is kitchen plantation etc and also for recharging purpose.
4	Plantation	Park near Govt School, Stadium, Shamshanghat.	Ha	4	0.50	2.00	To increase biomass cover and provide proper flow of water to facilitate transportation and conservation of natural resources.
Total						35.00	
Available						27.89	
Convergence						7.11	

Table. 1. Detailed estimate of Pond

Detail Estimate of village Pond						
	Volume of Pond	=	A+AB+C x D			
			6			
		=	(50x50)+4(41x41)+(32x32)		X 3.00	
			6			
		=	5124 cum			
	Volume of Stone Pitching	=	Area X Depth/ Height			
		=	3824 X 0.15			
		=	423.60 cum			
			or say - 1461.55 cft.			
Leads Statement						
	Horizontal Leads	=	(length/2) +(cross section area/2 x 0.60)			
		=	80/2 + {(16.50 + 3)/2 x 2.25}/2 x0.60			
		=	61.94 mtr.			
	Vertical Leads	=	(Depth + Height) x 0.4 x 10			
		=	21.00 mtr.			
	Total Leads	=	{(61.94 + 21.00) - 15.00}/7.5			
		=	9 Leads			

Table.2. Abstract of cost of estimate for Digging Village Pond

S.No.	Particulars	H.S.R. No.	Quantity	Rates	Unit	Amount
1	Excavation of earth work for digging of the vill. Pond	6.2 (b)	5124.00	2243.75	100 cum	114969.75
2	Extra for every 7.50 mtr. Additional lead upto 60 mtr. For 6 No. leads	6.2 (c')(i)	5124.00	496.29	100 cum	25429.90
3	Extra for admixture of shingle or Kanker upto 30%-40%		5124.00	1218.45	100 cum	62433.38
4	Extra for compaction in 25 cm layers but excluding rolling	6.2 (g_(i)	5124.00	260.48	100 cum	13347.00
5	Extra for watering in 25 cm layers as per specifications for compaction	6.2 (g_(ii)	5124.00	286.88	100 cum	14699.73
6	Extra for rolling in 25 cm layers as per specifications by sheep foot roller	6.2 (g)(v)	5124.00	401.62	100 cum	20579.01
					Total	**251458.76**
					Add. Contigency @2%	**5029.1753**
					Grand Total	**256487.94**
					Or say `	**2.60 Lac**

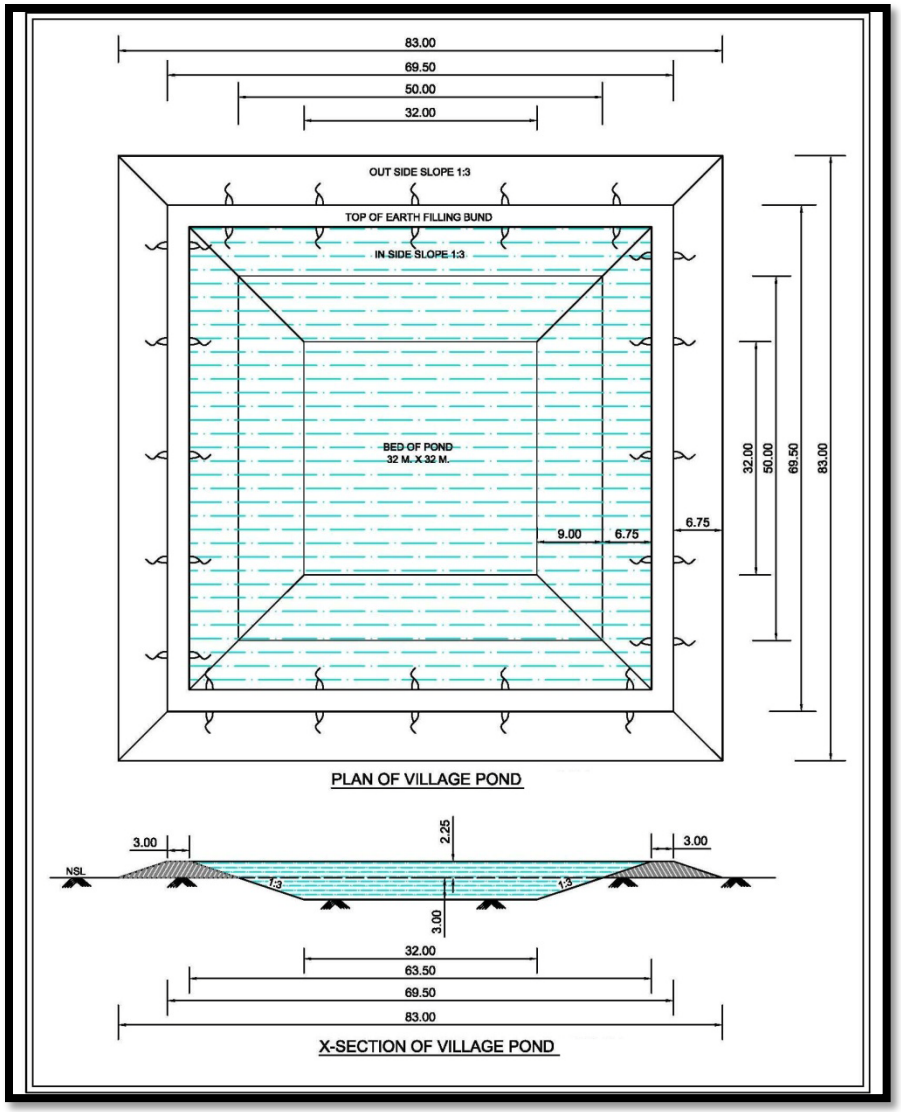

83.00
69.50
50.00
32.00
OUT SIDE SLOPE 1:3
TOP OF EARTH FILLING BUND
IN SIDE SLOPE 1:3
BED OF POND
32 M. X 32 M.
9.00
6.75
6.75
32.00
50.00
69.50
83.00
PLAN OF VILLAGE POND
3.00
2.25
3.00
NSL
1:3
1:3
3.00
32.00
63.50
69.50
83.00
X-SECTION OF VILLAGE POND

Table: Estimate of Open Channel

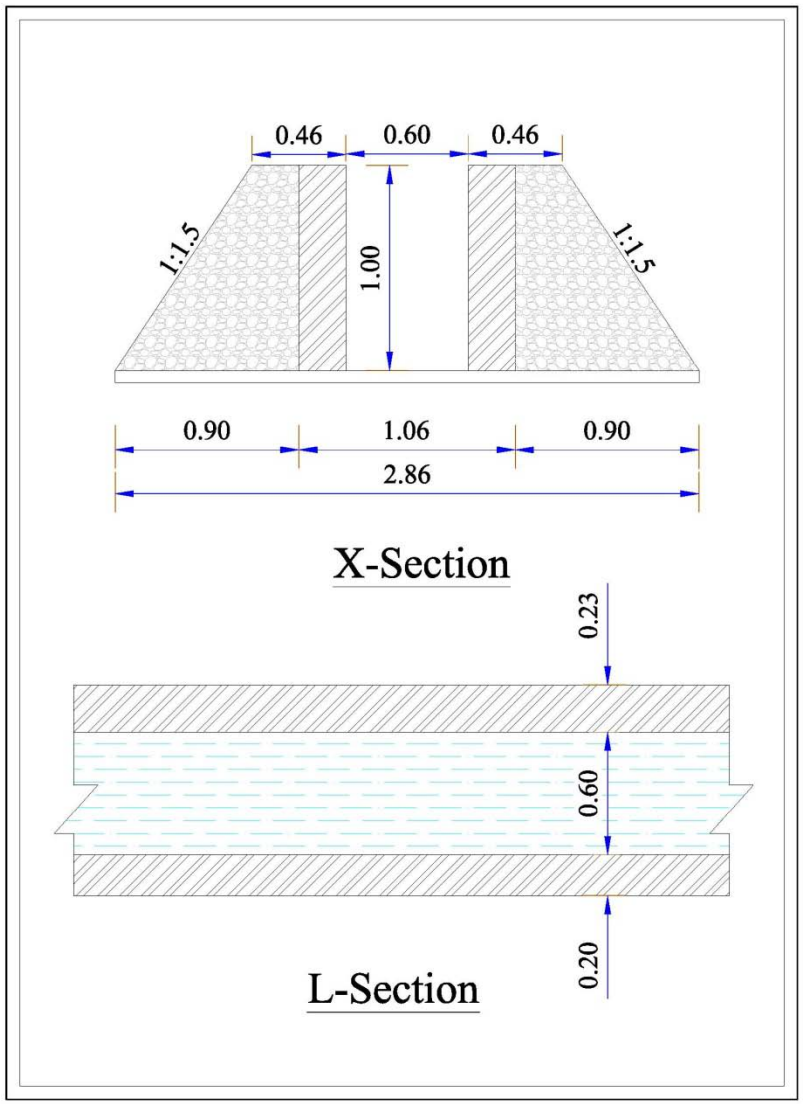
Abstract cost of Pucca Disposal open channel in

Detail estimate of Pucca disposal open channel

Sr. No.	Particular	No.	L	B	D/H	Quantity
1	Earth work of excavation in ordinary 2016 1(a)	1	100 m	1.20 m	0.54	64.8m³
2	Flat brick laid over a bed of 6 mm thick CSM HSR 14-24	1	100 m	1.06 m		106m²
3	First Class bricks work CSM 3.5 in foundation, plinth Nos. 12.23	2	100 m	0.225	0.45	20.25m³
4	Plaster on bed in 1.4 CSM 12 MM thick HSR 15.5	1	100	0.60		60m²
5	Plaster 14.12 mm thick side wall HSR 15.5 inside	2	100		0.45m	90m²
6	Providing field Gola 14 HSR 15.5	2	100	0.117		23.4m²
7	Topping 25 mm thick on top CWC HSR 14.8	2	100	0.225		45m²
8	Earth work for wall protection	2	100	0.565	0.23 + 0.90/2 = 0.45	50.85m³

Sr. No.	Particular	Quantity	Rate	Unit	Amount
1	Excavation of earth work in	64.8 m3	415.50-15%	100 m³	1201.49

	ordinary soil as per HSR 6.1(a)		+425% =1854.16		
2	Flat bricks laid in bed HSR 14.24	106 m2	520-15%+600% = 296.60	m²	3279.64
3	First class bricks works land in CSM 1.5 HSR 11.23	20.25 m3	49.85 + 15% + 600% =296.60	m³	6339.62
4	Plaster bed 1.4 12 mm thick 15.5 HSR	60 m2	5.5 + 15% + 500% = 28.05	m²	1683.00
5	Plaster 14 m side wall 15.5 HSR	90 m2	5.5 + 15% + 500% = 28.05	m²	2574.50
6	Field Gota 1.4 HSR 15.5	23.4 m2	5.5 + 15% + 500% = 28.05	m²	656.37
7	Topping 25 mm thick on top of wall HSR 14.8	46 M2	8.60+15% + 600% = 51.17	m²	2302.65
8	E/work for wall protection HSR 6.1 (a)	85.50 M3	415.50 +15% + 500%	100 m³	1077.53
			Total labour cost		**18596.64**
			Material cost		**98783.00**
			Total		**117379.64**
			Contingency 2%		**2347.59**
			Grand total		**49929.23**



Pucca disposal open channel

Table. 8. Estimate of Orchard Development in the Watersheds Per Hectare (Lemon, Kinnoo)

A. Horticulture

Sr. No.	Particulars	Quantity	Unit	Rate	Amount
1	Soil working 1m x 1m x 1m size pits (390 Nos.) including cost of refilling(At the distance 15'x15')	390.00	cum	36.66	14297.40
2	Application of Farmyard Manure, including cost			L.S.	750.00
3	Cost of fertiliser/ pesticide @250gm/plant			L.S.	750.00
4	Cost of plants (including 15% etc. for mortality) including transportation and planting	450.00	Nos.	15/Plant	6750.00
5	Casualty replacement @ 10% of item No. 4 & 5				465.00
6	Cost of 2 weedings and hoeing			1.00/Pant	540.00
7	Contingency and unforeseen (3%)				492.00
				Total	**24044.40**
				Say `	**24000.00**
	Maintenance cost 2nd year			**L.S.**	**1000.00**
	For next 5 years i.e. , ` 1000 x 5				**5000.00**
				Total	**30000.00**
				Say `	**30000.00**

Estimate of Orchard Development in the Watersheds Per Hectare (Guava ,Amla & Ber)

B. Horticulture

Sr. No.	Particulars	Quantity	Unit	Rate	Amount
1	Soil working 1m x 1m x 1m size pits (225 Nos.) including cost of refilling(At the distance 20'x20')	225.00	cum	36.66	8248.50
2	Application of Farmyard Manure, including cost			L.S.	450.00
3	Cost of fertiliser/ pesticide @250gm/plant			L.S.	450.00
4	Cost of plants (including 15% etc. for mortality) including transportation and planting	260.00	Nos.	30/Plant	7800.00
5	Casualty replacement @ 10% of item No. 4 & 5				465.00
6	Cost of 2 weedings and hoeing			1.00/Pant	540.00
7	Contingency and unforeseen (3%)				492.00
				Total	**18445.50**
				Say `	**18500.00**
8	Maintenance cost 2nd year			L.S.	**1000.00**
	For next 5 years i.e. , ` 1000 x 5				**5000.00**
				Total	**24500.00**
				Say `	**24500.00**

Table. 9. Estimate of Agro- Forestry/ Afforestation

Plantation Model						
Cost statement of 1 Ha. Of activities of Plantation for 1st year (wage rate Rs. 94.13/-)						
Sr. No.	**Item of work**	**Unit**	**Qty.**	**SOR**	**Man days**	**Cost**
B	**Nursery**					
i	Raising of Plants in nursery	Nos.	660	18	5601.00	**11880.00**
C	**Carriage**					
i	Loading/ Unloading of plants up to 100 mtr.	Nos.	605	21.18	1.36	128.139
ii	Multistage carriage of plants					
a)	By tractor up to 10 km.	Nos.	605	18.83	12.10	1139.22
c)	By manual labour in plantation area	Nos.	605	42.36	2.72	256.28
					Total	**1523.63**
D	**Planting**					
ii	Soil working for patch sowing	M3	31.25	61.18	20.31	1911.88
	500 x 0.50 x 0.50 x 0.25					
iii	Planting of seeding including 10% replacement 20 x 30 cm.	Nos.	550	188.26	10.99	1035.43
					Total	**2947.31**
E	**Cultural operations & chemical treatment**					
i	Fertilizer application	Nos.	500	9.41	0.50	47.05
ii	Insecticide application	Nos.	500	9.41	0.50	47.05

iii	First Weeding & hoeing	Nos.	500	141.2	7.5	706.00
vi	Subsequent weeding & hoeing two time	Nos.	1000	94.13	10.00	941.30
					Total	**1741.40**

G	**Material**					
ii	Spade and pick axes	----	----	----	----	135.00
iii	Basket/Bucket	----	----	----	----	135.00
v	Fertilizer	----	----	----	----	135.00
vi	Insecticide	----	----	----	----	270.00
					Total	**675.00**

	G. Total =	**18767.34**
	or Say =	**18767.00**

PRODUCTION SYSTEM- 10%

7.3 PRODUCTION SYSTEM

7.3.1 Crop Production

Present Status: Agriculture is the mainstay of the inhabitants of the project area which is mainly rainfed and people gamble with the uncertain rains. The fertility of the soil is very poor especially in available nitrogen is low and available phosphorous in the soil is low to medium and the available potash in the soil is medium to high. Mustard, Wheat and Bajra are the main crops. Due to frequent droughts, crop failures are common, and yield levels are low. Farmers maintain fodder plants on the field bunds. Because of extensive damage by wildlife, farmers are gradually shifting towards dairy farming. But there is acute shortage of green and dry fodder. Still traditional farm practices are followed such as manual weeding and hoeing, use of desi ploughs and bullock power in tillage operations. The systematic and regular soil testing has not been done. Only farm yard manure is added to maintain yield levels. Food grains are hardly sufficient for 6 to 8 months with small farmers. Post-harvest gain storage, food processing and value addition techniques are not prevalent.

Scope of Improvement: There appears tremendous scope in improving production systems of the project area. The following practices are suggested for better harvests.

- Conservation farming concept based on getting highest yield per drop of water shall be introduced.
  This would also include better tillage practices for in-situ rain water conservation.
- Weather related contingent crop planning shall be introduced to reduce the impact of droughts.
- The varieties of wheat are old and shall be replaced with latest varieties.
- There is a good scope of introducing hybrid varieties of Bajra. Intercropping of Moong and Urad is suggested with Bajra.

- The application of fertilizers on soil test basis and minimum use of chemicals for weed and disease control shall be promoted.
- Farmers would be linked to farm advisory services and Krishi Vigyan Kendras.
- The dry land farming techniques should be adopted for better production.
- Agro-forestry with integration of trees like Neem, Acacia, Shisham would be promoted on large scale.
- Leguminous crops mainly Moong and mash short duration varieties needs to be introduced

7.3.2 Horticulture

Existing System: Ber, Amla and Guava are the most preferred fruit crop of the farmers and scattered plants of local citrus fruits are seen in farm lands. Some farmers have started raising Guava and Kinnow where irrigation facilities are available. Citrus fruits also raised but mostly for domestic use. Well organized marketing system in fruit plants.

Proposed System: The average annual rainfall is 455 mm in the project area. The project areas are well connected by roads and the economic condition of the locals can be improved by introducing improved cultural practices of fruit plants coupled with rain water harvesting and efficient use of water. Large numbers of farmers are interested to increase area under Guava, Ber and Kinnow requested for supply of good quality nursery raised plants. Several families have shown interest in raising Citrus fruits and Amla. The following activities are proposed to promote horticulture in the area.

- Supply of quality seedlings arranged from approved nurseries as per choice of farmers.
- Soil testing up to a depth of 180 cm depth to ensure suitability of soil for fruit plants.
- Proper back up technical support on orchard management by involving HAU Farm Advisory Service and department of horticulture.

- Appropriate safeguards from wildlife damage, frost damage and wind breaks.
- Arrangements for limited irrigation at least for first few years.
- Organizing SHGs around horticulture and joint purchase of inputs and marketing.

7.3.3 Vegetable cultivation

Present status: Vegetable cultivation as such for market purpose is not followed mainly because of the limitation of irrigation facilities. Most farmers raise vegetable crops in back yards for domestic use. Some poly houses have come up in the area with financial support from National Horticulture Mission and have started commercial cultivation of off season vegetables.

7.3.4 Promotion of Farm Forestry and Agro-forestry

Most of the privately owned non-arable the area is under mix of trees and bushes. Lantana, sarkanda and parthenium, the most obnoxious weeds have invaded such area.

- Planting of improved cultivars of Neem in the project as single rows on field bunds and also as blocks has been proposed to promote agro-forestry as an alternate source of income.

7.3.5 Livestock Improvement Including Fodder Production

Livestock rearing is the most important subsidiary occupation of the project villagers. In addition to selling milk for regular daily income, farm yard manure is most needed to maintain fertility and moisture retention of soils. Even landless families also maintain few numbers of animals. The animal breed improvement work was initiated in these villages under Aravali, DDP, DPAP projects and it is a regular program of the Animal Husbandry Department.

However, the availability of animal health services at the door step is grossly lacking. The programs proposed under the project for livestock improvement include:

- In order to promote animal health care camps shall be organized and medicines for de-worming, mineral mixture shall be supplied in addition to awareness generation about prevention of animal diseases.
- Provision of quality seed of fodder crops and demonstration.

7.3.6 Marketing Arrangements and Proposal for Improvement

There is no organized system of marketing although market surplus is limited. The marketing of Wheat, Mustard and Bajra is not a problem because of fixed prices and government controlled procurement system. There is no organized system of marketing of vegetables and milk though both are source of income with many families.

The efforts through the project are made towards diversification of agriculture to include fruit and vegetable crops and dairy development. The transfer of area to these high value crops would depend on development of irrigation facilities, facilitation in input supplies, transfer of production technology, easy credit and market linkages. Efforts have been made to reactivate the non-functional SHGs and UGs. New watershed committees have been formed in each village. Farmers have shown interest in joint management of resources and join hands for processing, value addition and marketing.
Fortunately, the involvement of Rural Development Department means regular interaction with the district administration whose good offices would be used to involve rural banking institutions in funding support for SHGs, User Groups and other interest groups.

7.3.7 Detail of production system to be promoted

Based on the discussions during PRA, the scope of production systems was worked out and as per the provision of funds @ 10% of the budget, the following activities were finalized.

Table 17:.Detail of Production System proposed to be promoted in the project village

S. No.	Particulars	Contents	No. of micro watersheds	No. of beneficiaries per micro watershed	No. of total beneficiaries	Cost per beneficiaries	Total
1	Vermi Compost	Vermi compost is organic matter that is decomposed and recycled, used as fertilizer for soil amendment which is a key ingredient in organic farming. Under IWMP, financial assistance of 25% of total cost of Rs. 24000/- is provided.	11	20	220	6000	1320000
2	Green Manuring	Addition of organic matter required, which is deficient in project area. Under IWMP, financial assistance @ Rs. 500 for 20 Kg.s per farmer for 2 Acre (0.8 ha) holding is provided.	11	100	1100	500	550000
3	Bio-fertilizers	For integrated nutrient management (combination of chemical fertilizers, organic manure, crop residue and nitrogen fixing. Under IWMP, financial assistance @ Rs. 40 per farmer for 2 Acre (0.8 ha) holding is provided.	11	300	3300	40	132000
4	Pest-Management	For integrated pest Management, the bio control technique has been reported eco-friendly for control of pests. A provision of Azadirachtin bio pesticide @ Rs. 250/lit. per farmer is provided.	11	150	1650	250	412500

S. No.	Particulars	Contents	No. of micro watersheds	No. of beneficiaries per micro watershed	No. of total beneficiaries	Cost per beneficiaries	Total
2	Sprinkler irrigation	Sprinkler irrigation is a method of applying irrigation water which is similar to natural rainfall. Under IWMP, financial assistance @ 25% of Rs. 30000/- or price fixed by agriculture department is provided.	11	14	154	7500	1155000
5	Drip Irrigation	Drip Irrigation is an irrigation method that saves water and fertilizer by allowing water to drip slowly to the roots of plants. Under IWMP, financial assistance @ 10% of Rs. 58000 per ha for horticulture fixed by Agriculture Department is provided.	11	15	165	5800	957000
6	Lazer Leveling	Lazer Leveling is one such proven technology that is highly useful in conversation of irrigation water. Under IWMP, financial assistance @ 30% of Rs. 1075 per farmer is provided	11	150	1650	322.5	532125
7	Kitchen Gardening	To facilitate with inputs, seeds and equipments etc., for development of Kitchen Gardening. Under IWMP, financial assistance @ Rs. 50 per farmer per season (Rs. 100 per year) is provided.	11	300	3300	100	330000
8	Horticulture	Potential for Grafted Horticulture plants. Supply of plants @ Rs. 40/- per plant under IWMP 50 % cost share for cultivation of fruits like Citrus fruits, Guava, Amla, Ber floriculture and vegetables (especially, turmeric, garlic, onion and tomato)	11	200	2200 (22000 plants)	Rs.20 per plant	440000
Total							5828625
Contingency, printing material other unforeseen items							**39375**
Total fund available under this component							**5868000**

Total: Rs. 5868000/-

The provision of additional subsidy component under IWMP would be utilized by linking with the line department.

Note. The development of Horticulture, Animal Husbandry and Agro forestry has limited scope because of scattered & small land holding, wild life problems and drought conditions. The National Horticulture Mission has already implementing various schemes in the project area. The beneficiaries are taking advantages under their ongoing schemes.

In order to manage the fodder scarcity the latest rain fed varieties of fodder crop will be introduced on the recommendation of experts of Haryana Agriculture University and Central Soil and Water Conservation Research Institute, Chandigarh. Necessary provision for organizing the various training programme / exposure visits has been provided in the Capacity Building activity.

7.3.8. Vermin Compost

The vermin compost is one of the very useful organic manure. The vermin compost prepared by induction of various types worms (Earth Worm), to de compost and converted from raw animal dung to well de compost highly nutritive organic manure.

One of the important occupations of villagers is the animal husbandry. At present, the animal wastes are not being used by the villagers. This waste can be utilized as vermin- compost on the farm where the productivity and physical condition of the soil can be increased manifold. The animal waste can be used for preparation of vermin- compost. The available nutrients in vermin- compost are higher than country type farmyard manure. As per NHM guideline, the installation cost of structure of 1 vermin compost unit (size) 500 Sq. ft., the total cost of the unit would be is Rs. 60000/-. Out of this the 50% subsidy i.e. Rs.30000/- is met from the ongoing programme of horticulture department. The additional amount i.e. Rs. 10000/- will be form under IWMP Programme. The nutrition value of vermin compost is more than Farm Yard Manure and compost i.e. nitrogen- 1.2 to 1.6%, Phosphorous 1.5 to 1.8%, Potash 1.2 to 2% are just double.

Table 18: Model/ Estimate for a Vermin Compost Unit

Sr. No	Component	Expenditure to be incurred
1	Construction of shed of size 500 Sq. ft.@ Rs. 100 per Sq. ft. with pacca floor, beds and coverings etc.	50000/-
2	Cost on breeding material and purchase of worms etc.	8000/-
3	Tools and equipments etc.	2000/-
	Total	**60000/-**

Components of Vermin Compost Unit

1. **Shed**

Due to the high temperature in summer, shed structure is needed for vermin compost unit. It can be made by use of bricks/ concrete pillars. While designing the shed adequate room has to be left around the beds for easy movements of labours attending to the filling and harvesting the beds.

2. **Vermin- beds**

Scientific bed side depending upon the provision of filtered for drainage of excess water is prepared of about 75- 90 cm thick. The whole bed should be above the ground, the proper bed width to be not more than 1.5 m to allow easy access to the centre of the bed is constructed.

3. **Land**

About 125 sq. m. land is required to set up the vermin compost production. It should have 2- 3 sheds each of 180- 200 sq. ft. Good watering arrangement is required as the moisture is very essential for vermin compost production.

4. Seed Stock

This is important because worms multiply at the rate of 350 worms per cubic meter of bed space over a period of six months in a year.

5. Machinery

Farm machinery and implements are required for cutting the raw material in small pieces, conveying shredded raw material to the out sheds, loading, unloading, collection of compost, loosening of beds for aeration, shifting of the compost. Costs of providing necessary implements and the machinery have to be included in the project cost.

LIVELIHOOD ACTIVITIES FOR THE ASSET LESS PERSONS-9%

7.4 LIVELIHOOD SUPPORT TO SHG'S

The key issue of inclusion of this chapter is that about 70% of the population in the proposed villages depends on agriculture and allied activities, but it rarely provides sufficient means of survival to small and marginal farmers. During the base line survey, this aspect was discussed with the existing Self Help Group/ Gram Sabha members. The representative of WAPCOS, Sociologist of the team held comprehensive discussions on the possibilities of livelihood in the rain fed areas. The main objectives of these discussions were:

1. Assure one livelihood option to poor families.
2. Assured livelihood for at least 300 days in a year including MGNREGA.
3. At least one daily job per family mainly SCs/BPL/very poor families.

SHGs would be imparted Skill Training on HSRLM pattern and it is proposed to impart them trainings at Krishi Vigyan Kender (CCSHAU) Jhajjar and Haryana Institute of Rural Development, Nilokheri, Agriculture University, Hisar, Central Soil and Water Research and Training Institute, Chandigarh. It is proposed to lend revolving fund of Rs. 25000/- to each SHG/individual formed in the watershed villages. Since the members from SHGs/landless are very poor, they do not have resources to start micro enterprises, it is envisaged that they should be assisted and given loan of this amount in the shape of Revolving Fund Assistance (RFA) so that they do not get trapped by money lenders. Funds thus given on loan are recoverable from SHGs/individuals in easy installments. It is also proposed to impart skill training to at least 10 unemployed youth from each village and give them trainings of their choice so that they establish some small enterprises. It is further proposed to give them interest free loan of Rs. 12000/- each as Revolving Fund Assistance to meet their urgent needs of funds for establishing micro enterprises. Such funds recovered could either be given back to SHGs/individual or some other SHGs/individuals depending upon assessment of their respective needs. It is proposed to

form 2 SHGs in each village and identify at least 10 youths in each village for imparting training and giving Revolving Fund.

The scheme would be implemented in phased manner in the project area and the project implementation agency will co-ordinate with the Community Resource Persons(CRP) already posted at the grass root level under Haryana State Rural Livelihood Mission(HSRLM). The SHG should follow five Sutras i.e.

1. Regular Meetings
2. Financial saving in the meetings
3. Internal Lending
4. Regular Recovery.
5. Proper maintenance of Account books.

Based on the above five Sutras, grading of SHG should be done.

The following activities are proposed in consultation with the Watershed committees.

7.4.1 Activities those are likely to be taken up by SHGs/individuals

1. Cutting and Tailoring
2. Embroidery
3. Mushroom cultivation
4. Plumbing
5. Carpentry
6. Bee keeping
7. Animal husbandry

8. Vermi composting
9. Cattle rearing and selling milk
10. Household wiring, Motor winding
11. Backyard poultry
12. Skill Development in Computer

The details of funds proposed to be utilized under this component are as under:

Table 19. Revolving Fund Assistance for SHGs

S.No.	Name of micro watersheds	No. of villages	Total SHGs	Amount of RFA per SHG	Total
1	Kheri Taluka Patoda	1	1	25000	25000
2	Kahri	1	1	25000	25000
3	Amadalpur	1	1	25000	25000
4	Koka	1	1	25000	25000
5	Asadpur kera	1	1	25000	25000
6	Machroli	1	1	25000	25000
7	Dadanpur	1	1	25000	25000
8	Subana	1	1	25000	25000
9	Kasni + Saspur majra	1	1	25000	25000
10	Dhakla	1	1	25000	25000
11	Bhatera	1	1	25000	25000
		11	**11**		**275000**

Table 20. Skill Trainings/Skill up gradation for SHGs

S.No.	Name of micro watersheds	No. of villages	Total SHGs	Amount of Training per SHG	Total
1	Kheri Taluka Patoda	1	1	35000	35000

2	Kahri	1	1	35000	35000
3	Amadalpur	1	1	35000	35000
4	Koka	1	1	35000	35000
5	Asadpur kera	1	1	35000	35000
6	Machroli	1	1	35000	35000
7	Dadanpur	1	1	35000	35000
8	Subana	1	1	35000	35000
9	Kasni + Saspur majra	1	1	35000	35000
10	Dhakla	1	1	35000	35000
11	Bhatera	1	1	35000	35000
		11	**11**		**385000**

Note: This training cost includes Travel, boarding/lodging, cost of training and faculty support for different discipline e.g. Bakery Product, Soap and detergent making, fisheries, Bee keeping, Vermi Compost, Domestic poultry, Mushroom cultivation, Plumbing, Carpentry, Food Processing, Animal Husbandry, Product Processing etc.

Table 21. Computer Training (6 months) for unemployed youth above 12th passed male and female both recommended by Watershed Development Committee

S.No.	Name of micro watersheds	No. of villages	No. of Persons in micro watershed	Amount of Training per trainee for 6 month	Total
1	Kheri Taluka Patoda	1	10	10000	100000
2	Kahri	1	10	10000	100000
3	Amadalpur	1	10	10000	100000

4	Koka	1	10	10000	100000
5	Asadpur kera	1	10	10000	100000
6	Machroli	1	10	10000	100000
7	Dadanpur	1	10	10000	100000
8	Subana	1	10	10000	100000
9	Kasni + Saspur majra	1	10	10000	100000
10	Dhakla	1	10	10000	100000
11	Bhatera	1	10	10000	100000
		11	**110**		**1100000**

Note: The beneficiaries will contribute 10% as cost sharing of the livelihood support programme Rs. 1100000 @ 10% cost sharing.

= 1100000- 110000
= 990000/-

Table 22. One time assistance as Revolving Fund to unemployed youth who have successfully completed Computer Training for setting up a computer centre

S. No.	Name of micro watersheds	No. of villages	No. of Persons in micro watershed	Amount of Training per Trainee	Total
1	Kheri Taluka Patoda	1	5	25000	125000
2	Kahri	1	5	25000	125000
3	Amadalpur	1	5	25000	125000
4	Koka	1	5	25000	125000
5	Asadpur kera	1	5	25000	125000
6	Machroli	1	5	25000	125000
7	Dadanpur	1	5	25000	125000
8	Subana	1	5	25000	125000
9	Kasni + Saspur	1	5	25000	125000

	majra				
10	Dhakla	1	5	25000	125000
11	Bhatera	1	5	25000	125000
		11	**55**		**1375000**

Note: This training cost includes Travel, boarding/lodging, cost of training and faculty support.

Note: The beneficiaries will contribute 10% as cost sharing of the livelihood support programme Rs. 1980000 @ 10% cost sharing.

= 1375000- 137500
= 1237500/-

Table 23. Cutting and Tailoring Centre for female beneficiaries

S. No.	Name of micro watersheds	No. of villages	No. of centre's	Requirement for sewing machines per village (2 No.)	Payment to trainer per months	Period of training for each centre	Total payment to trainer
1	Kheri Taluka Patoda	1	1	2	2000	6	12000
2	Kahri	1	1	2	2000	6	12000
3	Amadalpur	1	1	2	2000	6	12000
4	Koka	1	1	2	2000	6	12000
5	Asadpur kera	1	1	2	2000	6	12000
6	Machroli	1	1	2	2000	6	12000
7	Dadanpur	1	1	2	2000	6	12000
8	Subana	1	1	2	2000	6	12000
9	Kasni + Saspur majra	1	1	2	2000	6	12000
10	Dhakla	1	1	2	2000	6	12000

11	Bhatera	1	1	2	2000	6	12000
		11	**11**	**22**			**132000**

Total cost for 11 Centres

1. Payment to trainers 132000/-

2. Sewing Machine Cost 132000/- @ Rs. 12000 per machine

3. Total 264000/-

Table 24. Embroidery Centre for female beneficiaries

S.No.	Name of micro watersheds	No. of villages	No. of centers	Payment to Trainer per Month	Period months	Payment to trainer for 6 months @ Rs. 2000 p.m	Total trainers	Grand Total
1	Kheri Taluka Patoda	1	1	2000	6	12000	1	12000
2	Kahri	1	1	2000	6	12000	1	12000
3	Amadalpur	1	1	2000	6	12000	1	12000
4	Koka	1	1	2000	6	12000	1	12000
5	Asadpur kera	1	1	2000	6	12000	1	12000
6	Machroli	1	1	2000	6	12000	1	12000
7	Dadanpur	1	1	2000	6	12000	1	12000
8	Subana	1	1	2000	6	12000	1	12000
9	Kasni + Saspur majra	1	1	2000	6	12000	1	12000
10	Dhakla	1	1	2000	6	12000	1	12000
11	Bhatera	1	1	2000	6	12000	1	12000

		11	**11**				**11**	**132000**

Total Cost:

Payment to trainer: Rs.132000/-

Cost of machine: Rs. 220000/- @ Rs. 20000 per machine

Total cost: Rs. 352000/-

Table 25. Livelihood Support

S.No.	**Name of micro watersheds**	**No. of villages**	**Revolving fund assistance to individuals unemployed youth/ landless, women**		
			Bee-keeping	**Dairy farming**	**Mushroom Production**
1	Kheri Taluka Patoda	1	25	10	3
2	Kahri	1	25	10	3
3	Amadalpur	1	25	10	3
4	Koka	1	25	10	3
5	Asadpur kera	1	25	10	3
6	Machroli	1	25	10	3
7	Dadanpur	1	25	10	3
8	Subana	1	25	10	3
9	Kasni + Saspur majra	1	25	10	3
10	Dhakla	1	25	10	3
11	Bhatera	1	25	10	3
	Total	**11**	**275**	**110**	**33**

	Rate (Rs)		**2400**	**2400**	**24000**
	Cost (Lakh Rs)		**6.60**	**2.64**	**7.92**

Contingency, printing material and other unseen items: Rs. 61700/-

Total funds available under this component are Rs. 5219500/-

In addition to HAU, the following institutions are also identified for imparting trainings:

i. HIRD, Nilokheri
ii. Agriculture, Technology and Extension, Hisar Agriculture University
iii. Central Soil and Water research and training Institute, Chandigarh
iv. Mushroom Training Centre, Sonipat and Solan
v. NIRD, Hyderabad
vi. Krishi Vigyan Kender (CCSHAU), Jhajjar

There appears to be great potential for these activities and these activities are likely to generate income of Rs. 2000/- to Rs. 2500/- per member per month. However no activities would be forced upon on any SHGs and they would be free to decide the activity they would like to opt for their additional income. The PIA can take up the activities as per the need and approval of the Watershed Committee. Based on their choice, Project report for the specified activity would be prepared and revolving fund of Rs. 20000/ Rs. 25000/- per SHG would be given for running their respective micro enterprise. If need arises for more funds for their Income Generation Activities at later stage, they would be assisted in getting loan from banks. SHGs thus formed would be provided all possible assistance to uplift for their Socio- Economic conditions.

CONVERGENCE

7.5 INTRODUCTION

The National Rural Employment Guarantee Act (NREGA), notified on September 7, 2005, marked a paradigm shift from the previous wage employment programmes with its rights-based approach that makes the Government legally accountable for providing employment to those who demand it. The act aims at enhancing livelihood security households in rural areas of the country by providing at least one hundred days of guaranteed wage employment in a financial year to every household whose audit members volunteer to do unskilled manual work. Such Inter sectoral convergence becomes instrumental towards.

- Establishing synergy among different government programmes in planning and implementation to optimize use of public investments
- Enhancing economic opportunities
- Strengthening democratic Processes
- Mitigating the effects of Climate Change
- Creating conditions for sustainable development.
- One of the significant areas for convergence is the Watershed Management Programme of the Dept. of Land Resources (DoLR) in the Ministry of Rural Development (MoRD),
- Convergence is an evolving process and while broad principles can be laid out at the centre, the actual contours of convergence will be determined by the resources at the Central, State, District and the project level. Also, to fully identify the possibilities of convergence, it may be necessary to make a beginning with select programmes, so that the experience of implementation may further inform and refine strategies for convergence.

7.5.1 Convergence between MGNREGA and Watershed Programmes

Most of the activities under watershed development are covered under MGNREGA and there is a need for convergence to meet gap in requirement under IWMP. The labour component would be met out of funds made available under MGNREGA. The village wise details of the fund requirement are exhibited below (table. 19)

Detail of Convergence of IWMP and other schemes

Table 19. GAPS IN FUNDS REQUIREMENT – MICRO WATERSHED WISE

S.No	Name of micro watersheds	Total cost requirement for works	Total funds available under IWMP for works	Gap in funds requirement for works	Convergence with MGNREGA
1	Kheri Taluka Patoda	35.40	30.24	5.16	5.16
2	Kahari	26.25	27.22	-	-
3	Amadalpur	33.50	32.93	0.57	0.57
4	Koka	28.20	26.88	1.32	1.32
5	Asadpur Khera	31.75	30.24	1.51	1.51
6	Machhrauli	35.00	27.89	7.11	7.11
7	Dadanpur	34.75	32.93	1.82	1.82
8	Subana	39.00	27.55	11.45	11.45
9	Kasani and Samastpur Majra	37.50	33.26	4.24	4.24
10	Dhalka	38.00	31.92	6.08	6.08
11	Bhatera	28.50	27.55	0.95	0.95
	Total	**367.85**	**328.61**	**40.21**	**40.21**

- Under NREGA almost all the activities required for watershed development are permitted. Convergence between NREGA and Watershed Programmes of DoLR will be mutually beneficial for rain fed areas.

7.5.2 Non-Negotiable for works executed under MGNREGA

- Only Job Card holders to be employed for MGNREGA component.
- Muster rolls will be maintained on work site, with copies in the Gram Panchayat and to be electronically maintained on nrega.nic.in
- Wage payments will be through no-frills accounts in banks/post offices.

Need for Convergence: Since more than 56% of activities related to Watershed development are covered under MGNREGA, there is need for convergence to meet gap in Funds requirements under IWMP. Detailed survey had been conducted in Watershed villages and it has emerged that there is need for more funds to augment and strengthen the activities under IWMP. All nine micro watersheds need more funds to meet the gap. Therefore, some of the works are proposed to be converged with MGNREGA. The labour component would be met out of funds made available under MGNREGA.

7.5.1 Convergence with Forest Department

The unit cost of agro- forestry component for 1 ha area (1100 plant) for plantation and other activity is Rs. 18767/-. The provision of Rs. 15000/- per ha has given in IWMP programme. The rest amount of Rs. 3767/- will be convergent from lined department from departmental schemes or MGNREGA.

7.5.2 Convergence with Horticulture Department

National Horticulture Mission is implementing the horticulture development programme which includes construction of water harvesting structures, drip and sprinkler irrigation activities which would be undertaken in convergence with the horticulture department. Under this activity 24 ha horticulture development programme with the financial assistance of Rs. 6.00 lakh has been provided in the project proposals. This would also be undertaken by convergence with the horticulture department.

7.5.3 Convergence with Agriculture Department

The activities under NRM like Renovation / Dug Out Pond, Water conveyance system, Strengthening of Water Conveyance Channel, Small Earthen Embankment with vegetative support, Earthen Embankment with pucca outlet, Ramp/Inlet and Outlet, Roof top rain water recharge structure, Community water storage Tank, Dry stone Check Dam etc. where the machinery and material component is required and the unit cost exceeds for completion exceeds to the project provision, the same will be met in convergence with the similar activities of the agriculture.

7.5.5 Convergence with Animal Husbandry Department

The watershed falls in the water deficit conditions for production of fodder and depends upon the rain. The rainfall pattern is erratic. There is deficiency of green fodder and nutrients for the animals. The provision has been kept for providing mini kits for of life saving medicines/ mineral mixture, concentrate feed and fodder seeds. Since the provision of these kits is less than the required, hence this would be met with the lined department who has a provision under their ongoing programmes.

CHAPTER – 8

QUALITY AND SUSTAINABILITY

8.1 Monitoring and Evaluation

8.1.1 Plans for Monitoring and Evaluation:

Web based GIS system is being developed for Monitoring and Evaluation at various stages of project under progress and post project. The satellite imageries are also helpful in monitoring all activities of the watershed area (Pre project, during project and post project). All the details relating to Watershed Activities would be available on website. The system is very useful to know the progress of the project at the click of the button. The higher officials would be able to monitor the progress and could generate the desired reports. The system would also help beneficiaries to know the area of importance, already treated area/ area to be treated. The system would serve an aiding tool to the planners and evaluators for judging the efficacy of the project.

8.1.2 Monitoring

Regular Monitoring of the project will have to be carried out at each stage to monitor the progress of the project. Different streams of monitoring are proposed as under:

1. Internal Monitoring by PIA/ WCDC
2. Progress and Process monitoring
3. GIS/ On line Monitoring

4. Sustainability monitoring
5. Self Monitoring by communities
6. Social Audits
7. Independent and external monitoring

Monitoring of watershed related activities will be carried out after completion of each phase. 1% amount of the project is earmarked under this component. Micro Watershed wise details are given below:

Table 1. Micro Watershed wise details

S.no	Name of the Micro Watersheds	Effective Area	Total Cost	Monitoring 1%
1	Kheri Taluka Patoda	450	54,00,000	54,000
2	Kahari	405	48,60,000	48,600
3	Amadalpur	490	58,80,000	58,800
4	Koka	400	48,00,000	48,000
5	Asadpur Khera	450	54,00,000	54,000
6	Machhrauli	415	49,80,000	49,800
7	Dadanpur	490	58,80,000	58,800
8	Subana	410	49,20,000	49,200
9	Kasani and Samastpur Majra	495	59,40,000	59,400
10	Dhakla	475	57,00,000	57,000
11	Bhatera	410	49,20,000	49,200

8.2 EVALUATION

Each evaluation will include physical, financial, and social audit of all work done. The objective of evaluation of the project is to assess the status of watershed related interventions in the project. The evaluation will be taken up in three stages of the project. The Evaluation will be done by agencies empanelled on SLNA.

1% amount of the project is earmarked under this component. Micro Watershed wise details were as under:

Table 2. Micro Watershed wise details

S.no	Name of the Micro Watersheds	Effective Area	Total Cost	Evaluation 1%
1	Kheri Taluka Patoda	450	54,00,000	54,000
2	Kahari	405	48,60,000	48,600
3	Amadalpur	490	58,80,000	58,800
4	Koka	400	48,00,000	48,000
5	Asadpur Khera	450	54,00,000	54,000
6	Machhrauli	415	49,80,000	49,800
7	Dadanpur	490	58,80,000	58,800
8	Subana	410	49,20,000	49,200
9	Kasani and Samastpur Majra	495	59,40,000	59,400
10	Dhakla	475	57,00,000	57,000
11	Bhatera	410	49,20,000	49,200

CONSOLIDATION PHASE- 3 %

Consolidation Phase = Rs. 17, 60,400 /-

8.3 CONSOLIDATION PHASE

This is another important activity under the project. In this phase, the resources augmented and economic plans developed in Phase II are made the foundation to create new nature based, sustainable livelihoods and raise productivity levels. There needs to be some mechanism at Watershed Level for the following crucial Activities as detailed below:

I. Managing/upgrading of all activities taken up under the Project.

II. Preparation of Project completion report and

III. Documentation of success stories

IV. Management of proper utilization of WDF

V. Mechanism for Quality and sustainability issues under the Project.

VI. Mechanism for fixation and collection of User Charges.

VII. Consolidation of works

VIII. Building the capacity of community based organizations to carry out the new agenda – post project period.

IX. Intensification of farm production systems/off farm livelihoods

X. Project Management related aspects

To take up these activities, it is proposed In the DPR as under:

Name of Micro watershed: Kheri Taluka Patoda

Table 3. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.33
2	Preparation of Project completion report	0.08
3	Documentation of success stories	0.08
4	Management of proper utilization of WDF	0.24
5	Mechanism for quality and sustainability issues under the Project	0.08
6	Watershed activities	0.81

Total: 1.62 lacs

Name of Micro watershed: Kahari

Table 4. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.29
2	Preparation of Project completion report	0.08
3	Documentation of success stories	0.07
4	Management of proper utilization of WDF	0.22
5	Mechanism for quality and sustainability issues under the Project	0.07
6	Watershed activities	0.73

Total: 1.46 lacs

Name of Micro watershed: Amadalpur

Table 5. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.35
2	Preparation of Project completion report	0.09
3	Documentation of success stories	0.09
4	Management of proper utilization of WDF	0.26
5	Mechanism for quality and sustainability issues under the Project	0.09
6	Watershed activities	0.88

Total: 1.76 lacs

Name of Micro watershed: Koka

Table 6. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.29
2	Preparation of Project completion report	0.07
3	Documentation of success stories	0.07
4	Management of proper utilization of WDF	0.22
5	Mechanism for quality and sustainability issues under the Project	0.07
6	Watershed activities	0.72

Total: 1.44 lacs

Name of Micro watershed: Asadpur Khera

Table 7. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.33
2	Preparation of Project completion report	0.08
3	Documentation of success stories	0.08
4	Management of proper utilization of WDF	0.24
5	Mechanism for quality and sustainability issues under the Project	0.08
6	Watershed activities	0.81

Total: 1.62 lacs

Name of Micro watershed: Machhrauli

Table 8. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.30
2	Preparation of Project completion report	0.08
3	Documentation of success stories	0.07
4	Management of proper utilization of WDF	0.22
5	Mechanism for quality and sustainability issues under the Project	0.07
6	Watershed activities	0.75

Total: 1.49 lacs

Name of Micro watershed: Dadanpur

Table 9. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.35
2	Preparation of Project completion report	0.09
3	Documentation of success stories	0.09
4	Management of proper utilization of WDF	0.26
5	Mechanism for quality and sustainability issues under the Project	0.09
6	Watershed activities	0.88

Total: 1.76 lacs

Name of Micro watershed: Subana

Table 10. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.30
2	Preparation of Project completion report	0.07
3	Documentation of success stories	0.08
4	Management of proper utilization of WDF	0.22
5	Mechanism for quality and sustainability issues under the Project	0.07
6	Watershed activities	0.74

Total: 1.48 lacs

Name of Micro watershed: Kasani and Samastpur Majra

Table 11. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.35
2	Preparation of Project completion report	0.09
3	Documentation of success stories	0.09
4	Management of proper utilization of WDF	0.27
5	Mechanism for quality and sustainability issues under the Project	0.09
6	Watershed activities	0.89

Total: 1.78 lacs

Name of Micro watershed: Dhakla

Table 12. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.34
2	Preparation of Project completion report	0.09
3	Documentation of success stories	0.08
4	Management of proper utilization of WDF	0.26
5	Mechanism for quality and sustainability issues under the Project	0.08
6	Watershed activities	0.86

Total: 1.71 lacs

Name of Micro watershed: Bhatera

Table 13. Consolidated Phase

S. No	Type of activity	Amount earmarked (Rs. In lacs)
1	Managing/ upgrading of all activities taken up under the project	0.30
2	Preparation of Project completion report	0.07
3	Documentation of success stories	0.08
4	Management of proper utilization of WDF	0.22
5	Mechanism for quality and sustainability issues under the Project	0.07
6	Watershed activities	0.74

Total: 1.48 lacs

As per the common guideline the management of developed natural resources would involve the following features:

- Improving the sustainability of various structures and equitable distribution. The watershed committee will fix the charges of water and the funds generated would be utilized O & M Structures. These users charges account will be maintained separately.
- Involvement of Gram Panchayat for repair, maintenance and protection of created structures.

CHAPTER – 9

EXPECTED OUTCOME

EXPECTED OUTCOMES

The effective area is 4890 ha and the Project Cost is Rs. 586.80 lacs covering 11 no. micro watersheds and in all 11 villages. Benefits will be much more than the project cost as detailed below:

With the several interventions under IWMP III project such as Livelihood support, Farm production system, various types of activities relating to soil conservation measures for diversification of crops, Protection to field by constructing the structures etc, it is expected that these Watershed villages shall be benefited. This intervention will have multiple benefits available to communities in terms of employment, check in migration, improvement in water table, more area under agriculture and horticulture, check in soil loss and decrease in Flood and drought incidences, improvement in crop yield, milk yield, check in degradation of land etc. The benefits thus accrued would be short term and long term. With the judicious use of funds available under IWMP and with convergence from MGNREGA and other schemes of Departments, this project of Jhajjar Watershed III will prove to be very beneficial in improving socio – economic status of people residing in Project villages.

Expected outcomes as mentioned above are given in the following tables:

9.1 EMPLOYMENT

Employment has always been a problem in the village. The principal occupations of the people are rain fed agriculture, animal husbandry and casual labour work. However, rainfall being limited and erratic, agriculture suffers, i.e. thus limiting them for a single crop, which keeps them partially engaged for 4 to 5 months. Similarly due to lack of fodder animal husbandry does not keep them fully engaged. Thus the people mainly depend upon casual labour either in the villages or in Bahadurgarh and NCR**.**

Table 1. Expected Employment Generation in the Project area

S. No.	Names of the villages	Wage employment										Self employment				
		No. of man days					No. of beneficiaries					No. of beneficiaries				
		SC	ST	Others	Women	Total	SC	ST	Others	Women	Total	SC	ST	Others	Women	Total
1	Kheri Taluka Patoda	1200	-	700	900	2800	15	-	10	8	33	7	-	8	3	18
2	Kahari	1100	-	550	850	2500	15	-	8	12	35	8	-	3	6	17
3	Amadaplur	1050	-	550	850	2450	12	-	7	11	30	8	-	2	8	18
4	Koka	432	-	268	360	1060	6	-	3	5	14	4	-	2	4	10
5	Asadpur Khera	648	-	402	540	1590	9	-	4	8	21	5	-	3	5	13
6	Machhrauli	1100	-	950	850	2900	14	-	12	7	33	8	-	6	3	17
7	Dadanpur	890	-	1030	1080	3000	12	-	15	13	40	10	-	2	7	19
8	Subana	950	-	650	720	2320	9	-	13	8	30	7	-	6	3	16
9	Kasni+ Samaspur Majra	1000	-	780	850	2630	12	-	8	10	30	8	-	4	6	18
10	Dhakla	980	-	670	1100	2750	12	-	8	12	32	8	-	4	8	20
11	Bhatera	1200	-	800	800	2800	18	-	12	15	45	8	-	2	7	17

		10550		**7350**	**8900**	**26800**	**134**		**100**	**109**	**343**	**81**		**42**	**60**	**183**

26800 man days would be generated with the implementation of the project in Jhajjar Watershed (IWMP III), which means 50 person for 100 days per year would be employed for the period of five years. In addition to this cropped area/productivity would be increased and will also generate employment.

9.2 MIGRATION PATTERN

Table 2. Pre and Post Migration in Jhajjar Watershed (IWMP III)

S. No	Name of micro watersheds	No. of persons migrating		No. of days per year of migration		Comments
		Pre Project	Expected post project	Pre Project	Expected post project	
1	Kheri Taluka Patoda	-	-	-	-	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
2	Kahari	50	25	6 months	3 months	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
3	Amadaplur	-	-	-	-	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
4	Koka	-	-	-	-	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
5	Asadpur Khera	-	-	-	-	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
6	Machhrauli	-	-	-	-	No. of persons migrating will be reduced

						and also no. of days would be reduced by over 50%
7	Dadanpur	50	25	6 months	3 months	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
8	Subana	40	20	6 months	3 months	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
9	Kasni+ Samaspur Majra	160	80	6 months	3 months	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
10	Dhakla	50	25	6 months	3 months	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%
11	Bhatera	-	-	-	-	No. of persons migrating will be reduced and also no. of days would be reduced by over 50%

A comparison of above table with expected migration of table 19 of the Chapter 3 reveals that there will be about 50% reduction in the migration.

9.3 GROUND WATER TABLE (Drinking Water)

The ground water behavior in the watershed reveals the variation of depth to water level from 0.5 to 21 m below ground level. In Subana, Dhakla, Kasni and Koka micro- watersheds area have ground water level below 5 m depth. The remaining areas of the watershed have the depth range is 5-10 m and above.

Table 3. Detail of average pre- post ground water table depth in the project area (in meters)

Sr. No.	Name of micro Watershed	Name of village	Source	Pre- project (M)
1	Kheri Taluka Patoda	Kheri Taluka Patoda	Well	20.75
2	Kahri	Kahri	Well	11.08
3	Amadalpur	Amadalpur	Well	7.40
4	koka	koka	Well	5.68
5	Asadpur kera	Asadpur kera	Well	7.48
6	Machroli	Machroli	Well	7.46
7	Dadanpur	Dadanpur	Well	7.42
8	Subana	Subana	Well	9.15
9	Kasni and Saspur majra	Kasni and Saspur majra	Well	2.81
10	Dhakla	Dhakla	Well	0.56
11	Bhatera	Bhatera	Well	-

Source: Ground Water Cell, Haryana

The watershed area is underlain by three zones, less than 5 m, 5-10 m and more than 10 m. The block falls in critical category based on utilization of ground water resources. The area experiences water below 10 m needs recharging and the area under 1.5 m depth needs strengthening of drainage networks for reclaiming water-logged and saline lands.

9.4 CROPS

To enhance the productivity, the integrated land and water management are important in the watershed area. The planned Water conveyance system, Dug Out Pond (New/Renovation), Ramp/Ghat Inlet and Outlet, Roof top rain water recharge structures etc.

can preserve sub moisture in the soil. This will help in additional area coming under cultivation and increasing productivity too. The crop yield pre project and expected and post project is presented in table 4**.**

Table 4. Increase in Expected Yield in Jhajjar Watershed (IWMP III)

Name of Micro-Watersheds	Village	Name of Crops	Pre project		Total Production (in Qtl)	Total Value Rs (in lacs)	Expected post project		Total Production	Total Value Rs (in lacs)
			Area ha	Average yield Qtl. Per ha			Area ha	Average yield Qtl. Per ha	(in Qtl)	
IWMP-III	Kheri Taluka Patoda	Wheat	1425	42	59850	897.75	1568	43	67424	1110.36
		Mustard	85	12	140	30.8	93	13	1209	26.59
		Paddy	248	33	8184	188.34	263	35	9505	211.71
	Kahri	Wheat	279	40	11160	167.4	309	42	12978	194.67
		Mustard	143	12	1716	37.75	157	13	2041	44.9
		Paddy	10	31	310	77.13	12	32	384	88.32
	Amadalpur	Wheat	355	40	14200	213	401	42	16842	252.63
		Mustard	90	11	290	63.8	100	12	1200	26.4
		Paddy	86	32	2752	43.52	97	34	3298	75.85
	Koka	Wheat	85	40	3400	51	93	42	3906	58.59
		Mustard	268	11	2948	64.85	295	12	3540	77.88
		Bajra	36	11	396	47.5	42	12	504	60.48
	Asadpur khera	Wheat	131	43	5635	84.52	144	45	6480	97.2

		Mustard	241	11	2651	59.32	265	12	3180	47.7
		Paddy	6	30	180	41.4	8	32	192	42.24
	Dadanpur	Wheat	362	42	15204	221.06	398	44	17512	262.68
		Mustard	80	11	880	13.2	88	12	256	23.23
		Paddy	68	30	2040	46.92	75	32	2400	55.2
	Subana	Wheat	318	40	12720	190.8	350	42	14280	214.2
		Mustard	49	11	539	11.85	54	12	648	14.25
		Paddy	225	32	7200	165.61	247	34	398	193.15
	Kasni	Wheat	459	40	11360	170.4	509	42	21378	320.67
		Mustard	239	12	2868	63.04	263	13	3419	75.21
		Paddy	40	30	1200	24.6	44	32	1408	32.38
	Bhatera	Wheat	509	42	31378	170.67	569	44	24506	368.94
		Mustard	250	12	3000	66	275	13	3575	78.65
		Paddy	42	34	1428	31.84	46	36	1656	38.08
	Machhroli	Wheat	434	44	19093	96.089	478	45	21510	322.65
		Mustard	364	12	4368	8.58	15	13	5213	114.68
		Paddy	13	30	390	269.67	470	32	480	16.4
	Samaspur majra	Wheat	428	42	9672	221.45	886	34	20680	311.2
		Mustard	806	12	1272	27.98	37	13	11518	253.39
		Paddy	33	35	1120	23.76	466	36	1332	30.63
	Dhakla	Wheat	424	44	18656	279.84	138	45	20970	314.55
		Mustard	125	12	1500	33	25	13	1794	39.46
		Paddy	21	31	631	14.51	25	32	800	18.4

Source: Revenue Department and Department of Agriculture, Jhajjar (Haryana)

9.5 HORTICULTURE

Table 5. Pre and post project area under Horticulture

S.No.	Name of Micro Watersheds	Existing area under horticulture (ha)	Additional Area under horticulture proposed to be covered through IWMP	Total area in ha – Post Project
1	Kheri Taluka Patoda	1	0.40	1.4
2	Kahri	-	-	-
3	Amadalpur	0.4	0.6	0.1
4	Koka	1	0.40	1.4
5	Asadpur khera	-	-	-
6	Machroli	1	0.65	1.65
7	Dadanpur	-	-	-
8	Subana	0.4	0.6	0.1
9	Kasni	0.4	0.9	0.9
10	Samspur majra	1	0.50	1.5
11	Dhakla	-	-	-
12	Bhatera	-	-	-
		5.2	**4.05**	**9.25**

9.6 AFFORESTATION/ VEGETATIVE COVER

Table 6. Pre and post project forest and vegetative cover

S.No.	Name of villages	Existing area under tree covered, ha	Area under tree cover proposed ha	Total
1	Ktp	1.2	0.75	1.95
2	Kahri	1.79	2.04	3.83
3	Amadalpur	0.85	0.9	1.75
4	Koka	0.74	1.1	1.84
5	Asadpur khera	1	1.3	2.3
6	Machroli	2.75	2.95	5.7
7	Dadanpur	1.74	1.94	3.68
8	Subana	1.8	0.9	2.7
9	Kasni	1.45	0.65	2.1
10	Samspur majra	2.2	1.3	3.5
11	Dhakla	2.8	1.75	4.55
12	Bhatera	0.39	0.49	0.88
		18.71	**16.07**	**34.78**

9.7 LIVESTOCK

Table 7. Details of livestock in the project area

S. No.	Name of micro watershed	Type of Animals	Pre project			Post project			Remarks
			No.	Yield Kg/ day	Income In Rs per day	No.	Yield Kg/ day	Income In Rs per day	
1	Kheri Taluka	Buffalo	1235	10-11	400-440	1420	12-13	504-546	Increase in milk yield and number of animals by approx. 15%

S. No.	Name of micro watershed	Type of Animals	Pre project			Post project			Remarks
			No.	Yield Kg/ day	Income In Rs per day	No.	Yield Kg/ day	Income In Rs per day	
	Patoda	Cow	59	5-6	75-90	68	7-8	140-160	Increase in milk yield and number of animals by approx. 15%
2	Kahri	Buffalo	325	8-10	320-400	374	10-12	420-504	Increase in milk yield and number of animals by approx. 15%
		Cow	38	6-7	90-105	44	8-9	160-180	Increase in milk yield and number of animals by approx. 15%
3	Amadalpur	Buffalo	689	10-11	400-440	792	12-13	504-546	Increase in milk yield and number of animals by approx. 15%
		Cow	77	5-6	75-90	89	7-8	140-160	Increase in milk yield and number of animals by approx. 15%
4	Koka	Buffalo	328	11-12	440-480	377	13-14	546-588	Increase in milk yield and number of animals by approx. 15%
		Cow	28	6-7	90-105	32	8-9	160-180	Increase in milk yield and number of animals by approx. 15%
5	Asadpur khera	Buffalo	353	11-12	440-480	406	13-14	546-588	Increase in milk yield and number of animals by approx. 15%
		Cow	18	6-7	90-105	21	8-9	160-180	Increase in milk yield and number of animals by approx. 15%
6	Machroli	Buffalo	229	10-11	400-440	263	12-13	504-546	Increase in milk yield and number of animals by approx. 15%
		Cow	7	5-6	75-90	8	7-8	140-160	Increase in milk yield and number of animals by approx. 15%
7	Dadanpur	Buffalo	862	8-10	320-400	991	10-12	420-504	Increase in milk yield and number of animals by approx. 15%
		Cow	180	6-7	90-105	207	8-9	160-180	Increase in milk yield and number of animals by approx. 15%

S. No.	Name of micro watershed	Type of Animals	Pre project			Post project			Remarks
			No.	Yield Kg/ day	Income In Rs per day	No.	Yield Kg/ day	Income In Rs per day	
8	Subana	Buffalo	1206	10-11	400-440	1387	12-13	504-546	Increase in milk yield and number of animals by approx. 15%
		Cow	98	5-6	75-90	113	7-8	140-160	Increase in milk yield and number of animals by approx. 15%
9	Kasni	Buffalo	1771	11-12	440-480	2037	13-14	546-588	Increase in milk yield and number of animals by approx. 15%
		Cow	54	6-7	90-105	62	8-9	160-180	Increase in milk yield and number of animals by approx. 15%
10	Samspur majra	Buffalo	621	11-12	440-480	714	13-14	546-588	Increase in milk yield and number of animals by approx. 15%
		Cow	19	6-7	90-105	22	8-9	160-180	Increase in milk yield and number of animals by approx. 15%
11	Dhakla	Buffalo	1539	10-11	400-440	1770	12-13	504-546	Increase in milk yield and number of animals by approx. 15%
		Cow	50	5-6	75-90	58	7-8	140-160	Increase in milk yield and number of animals by approx. 15%
12	Bhatera	Buffalo	1405	11-12	440-480	1616	13-14	546-588	Increase in milk yield and number of animals by approx. 15%
		Cow	74	6-7	90-105	85	8-9	160-180	Increase in milk yield and number of animals by approx. 15%

9.8 LINKAGES

The direct livelihood activities need good forward and backward support system. The activities may fail to deliver the desired results. These linkages would involve credit, machinery, input supply, marketing etc.

The backward forward linkages will involved the extension services which are brought available in the project proposal as capacity building and the provision have been kept. 20 kits of agriculture implement have been provided. Milk and other collection centre would be constituted with increased milk production under the project.

Table 8: Backward-Forward Linkages

Sr. No.	Project	Type of Marketing Facility	Pre-Project (no.)	During the Project (no.)	Post-project (no.)
1	Jhajjar Watershed (IWMP III)	Backward linkages	-	-	-
		Seed certification	Moderate	Extension and Training	Improved
		Seed supply system	Moderate	Extension and Training	Improved
		Fertilizer supply system	Moderate	Extension and Training	Improved
		Pesticide supply system	Moderate	Extension and Training	Improved
		Credit institutions	Banks	Coordinate to lead banks	Bank intensity increased
		Water supply for irrigation	Scarcity	Promote rain water harvesting	Would be promoted
		Extension services	KGK& Agriculture deptt.	Extension & Training in village level	Improved
		Nurseries	Horticulture and forest	To be promoted	Improved
		Tools/ machinery suppliers	Subsides	Educate by Extension & Training	Supplies would be improved
		Price support system	Major crops	-	Needs for all crops
		Labour	-	Employment generate through works activities	Migration reduce
		Any other (please specify)	-	-	-
		Road network	Available	Coordinate with lined department	Would be strengthen
		Transport facilities	Moderate	Coordinate with lined department	Would be promoted
		Markets / Mandies	Exists	Coordinate with lined department	Intensity would be increased
		Agro and other industries	-	Coordinate with lined department to	Would be

Sr. No.	Project	Type of Marketing Facility	Pre-Project (no.)	During the Project (no.)	Post-project (no.)
				establish Cottage industries (Kutir Udyog) for landless and unemployed youth	strengthen
		Milk and other collection centres	Milk collection centre in long distance	Coordinate with lined department	For installation on nearest door steps
		Any other (please specify)	-	-	-
			Vermi-compost unit	Convergence with NHM (Horticulture) department	To be increased
			Mushroom Cultivation	Convergence with NHM (Horticulture) department	To be increased
			Animal vitamins/ Minerals Deficit	Coordinate with lined department, to organize camps in watershed area	Animal vitamins feeds Would be promoted

9.8.1 LOGICAL FRAMEWORK ANALYSIS

Table 9. Logical Framework Analysis

Components	Activities	Outputs	Effect	Impact
Village Institution Formation	Formation of Watershed Community, User Groups	• Watershed Committee each village • Number of user groups depending on the coverage of particular intervention	Project can be implemented and managed in a democratic and Participatory way ensuring equity and transparency.	• Unity and prosperity in the village management. • People's Participation and positive perception towards the programme.
Strengthening Village operations	• Organizing training and awareness	• Awareness camps to be organized	• Quality of management of common resources	

Components	Activities	Outputs	Effect	Impact
	programme for village institutions (I.E.C. Activities). • Capacity Building workshops and exposure visits for User Group and Watershed Community • Facilitating and monitoring the functioning of UGs and WCs Strengthen linkages between UGs and WCs and Panchayat Institutions • Gender sensitization of UGs and WCs to increase inclusiveness of	• Trainings and exposure visits UGs and WCs to be held Capacity building workshops to be organized one. • Federations of UGs and WC to be formed.	improved. • Quality of distribution of benefits between people improved. • Increased awareness amongst women about village resources • Women participation enhanced in decision-making of GVCs. • Involvement of youth and children in village development.	

Components	Activities	Outputs	Effect	Impact
	Samuh (Joint) decision making. • Sensitize Village communities to involve children and youth in development			
Fund Management	• Improve management and utilization of UGs and WCs • Prepare communities to explore other sources of income for UGs and WCs.	UGs and WCs operating bank account and managing resources on their own.	• Purpose, frequency and volume of use of the fund enhanced • Volume of funds generated for UGs and WCs from other sources of income increased	
Ecological restoration	• Protection, Treatment and regeneration of common and private lands. • Protection, treatment and regeneration of	• Common and private lands to be brought under new plantations and agro-horti- forestry like Neem, Adussa, prosopis, Banyan and Peepul.	• Fodder availability from common and private land increased. • Accessibility to common and forest lands increased with removal of	• Better Ecological order in the area. • Increase in the proportion of households having more security of fodder.

Components	Activities	Outputs	Effect	Impact
	forest lands. • Plantation of fruits and forest species. • Input trainings, conduct meetings and organize exposure visits for communities, village volunteers and staff to effectively plan, execute and monitor activities. • Identification and promotion of non-timber forest produce based income generation activities.	• Forest lands to be brought under new plantations and protection. • Trainings, exposure visits and meetings to be organized for communities, village volunteers and staff. • Income generation intervention promoted	encroachments and resolution of conflicts	• Reduction in drudgery of fodder and fuel collection, especially women

Components	Activities	Outputs	Effect	Impact
Rainfed Area Development	• Treatment of land through improved soil and moisture conservation practices on watershed basis. • Promotion of good agricultural practices- horticulture, improved crop and vegetable. • Promotion of organic farming practices. • Formation of Fodder banks to increase fodder security and promote dairy development among communities. • Identification	• Land to be brought under improved soil moisture conservation practices. • Good agricultural practices to be promoted. • Organic farming to be promoted. Fodder banks to be established. • Agriculture based livelihood income generation activities to be promoted • Water harvesting structures to be constructed. • Drip irrigation facilities to be distributed among farmers. • Approx 15000 person days of employment to be generated.	• Improved productivity of treated land. • Increased availability of water in cells. • Increase in annual agricultural production. • Farmers adopt organic farming practices. • Fodder security of farmers enhanced. • Increased availability of water for 9 to12 months. • Increased availability of water for livestock • Increase in agricultural productivity of land. • Augmentation of drinking water supply.	Increase in proportion of households having more security of food Increase in contribution of agricultural income to the household income

Components	Activities	Outputs	Effect	Impact
	and promotion of agri-produce based income generation activities like grading, processing and packaging. • Promotion of better irrigation practices like drip irrigation • Impart trainings, conduct meetings and organize exposure visits of communities.	• Trainings, exposure visits and meetings to be organized for communities, village volunteers.		
Women's socio-political and economic empowerment	• Formation and strengthening of women' SHG groups • Capacity building of women folk. • Capacity building of SHG leaders and accountants	• Women's SHG groups to be formed. • Federation of Women's SHGs to be formed. • Trainings to be conducted for preparation of woolen products from	• Enhanced capacities of leaders of women's group in taking initiatives to solve problems at different levels. • Improved access to credit for livelihood purposes Increased	• Position of women in household, community, society (politically, socially and economically) as perceived by women and community at large. • Performance

Components	Activities	Outputs	Effect	Impact
	Linking SHGs with external financial institutions	sheep and goats	household income.	enhancement of SHGs in terms of participation, decision-making, leadership and fund management. • Equality and equity in gender relations at home (decision making, expenditure, children's education, health)

The adoption of soil and water management practices, renovation of village ponds and plantations not only improve productivity but also improve village environment. The investments made in water resources development would ease shortage of water both for domestic use and livestock and also make water available for supplemental irrigation.

The introduction of improved production technologies would stabilize crop production, save crops from adverse impacts of droughts and raise income level of farmers. The increased fodder availability and animal health care, the milk production would increase. There would be increased cash flows from subsidiary occupations. The increased awareness, operations through SHGs and easy availability of finance would make the communities more vibrant and enterprising.